



***EXPLORING INDUSTRIAL &  
ORGANIZATIONAL  
PSYCHOLOGY: Work &  
Organizational Behavior***

**Robert L. Dipboye**

**First Edition**

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## PREFACE

*Exploring Industrial and Organizational Psychology* provides a comprehensive review of the topics typically covered in courses on Industrial and Organizational (I/O) Psychology (most often used in the U. S., Canada, England, and Australia) and Work and Organizational Psychology (used in Germany, Netherlands, and other European countries). The text is appropriate for a broad audience including students at the undergraduate and graduate levels as well as those readers looking for an introduction to the topic. Because the text is an in depth coverage of the field, some readers may find the material challenging. There was a concerted effort to present the theory, research, and application as it is rather than presenting a grab bag of techniques and current fads. Strengths and weaknesses are discussed and when possible the actual results are presented in the form of effect sizes. Maintaining scientific integrity required in many cases a level of detail that is probably unusual for an introductory text. In short, if the reader is looking for simple primer, this is probably not the best choice. This text was written with several core attributes in mind, some of which are distinctive and distinguish it from other I/O psychology textbooks.

First, as implied in the title, the scientific nature of the field is emphasized. As in any science, there are controversies, conflicting results, and theoretical disputes. This ***is not*** the book for the reader seeking the final word on questions of human behavior in organizations. This ***is*** the book for those readers who seek to gain insight into a field that is continuing to evolve and who appreciate the competition of ideas crucial to scientific progress. I hope that the reader will share in the excitement associated with the efforts of I/O psychologists and other organizational scientists to generate an understanding of why people behave as they do in organizations and the implications for organizational effectiveness. The text does cover practical applications, especially in that section covering personnel topics. However, an underlying theme is that good practice follows from solid science.

Second, in reviewing the science, quantitative meta-analyses are used to show the cumulative results of research on the topics covered in this book. It is often the case that texts provide only qualitative reviews of research findings. As a consequence, the reader may mistakenly conclude that the relations among variables are stronger or weaker than is actually the case. Meta-analyses provide the reader with a realistic picture of the state of research findings and are useful in identifying directions for future research.

Third, the text provides the student with a basic understanding of the topics and intentionally avoids overly detailed presentations of psychometric issues and statistics. Consequently, students should be able to comprehend the material without much prior background in psychology or statistics. Although I have avoided overloading the reader with too much detail, the reader will also find that I thoroughly review the literature on the topics, with each chapter containing both classic and current citations.



Fourth, *Exploring Industrial and Organizational Psychology* provides a balanced coverage of personnel and organizational topics (the so-called I and O of I/O Psychology). The reader is exposed to a full range of organizational topics such as leadership, power, role theory, groups in organizations, conflict, and communication, as well as the traditional personnel topics of job analysis, selection, performance appraisal, staffing, and training.

Fifth, an effort is made to show the relevance of the research, theory, and applications to current events. Major changes are occurring in society that will fundamentally change careers and the way organizations manage human resources. Corporate restructuring, globalization of business, and diversity of the workforce are only a few of the continuing changes that are reshaping worklife. Throughout the text I use examples of how these changes are affecting organizations and the implications of these changes for the nature of work and the management of people at work.

Finally, the text attempts to provide an integrative review of the field. I/O psychology texts typically present organizational and personnel topics as if they are entirely separate areas of research. While I have maintained the split in the text between the “I” and the “O”, I cross reference throughout the text and frequently refer to the implications of research in O for topics in I and vice versa. Also, the organizational topics are covered prior to the personnel topics to emphasize that the latter always occur in the context of the organization.

The topics covered in this textbook are typical of those included in other I/O textbooks. There is no coverage of consumer psychology, unions, or engineering psychology. These are important topics but have become at best peripheral to the discipline of I/O psychology. They deserve a more focused and separate treatment. Also, there is no chapter dedicated to cross-cultural issues. The most impressive development in the field of I/O psychology over the last three decades is the conduct of research by those outside the United States. At one time, I/O was dominated by work in North America and England. A perusal of the professional journals reveals the explosion of research in China, Japan, Germany, Netherlands, and other countries. Where appropriate, attention is given to the national and cultural differences that moderate the results of research. The dynamics of human behavior at work and in organizations appear consistent enough across cultures to justify the universalistic approach of this text.

The first section of the text contains three chapters that are intended to provide a foundation for the second and third sections. The first chapter defines the field of I/O psychology and describe the activities and career paths of those who are in this field. Special attention is given in this chapter to how I/O psychology is part of the larger field of psychology but yet distinct social, clinical, cognitive and the other subdisciplines. The second chapter outlines the history and development of I/O psychology and related fields. Here there is an attempt to identify the individual scientists and practitioners who contributed to this history and the societal events that provided the background for the emergence of scientific applications of psychology to work and organizations. The third chapter is perhaps the most important in the text. Each of the subsequent chapters reviews

the body of knowledge that has accumulated for various topics, while emphasizing that what is known about each topic is evolving. Scientific research continues to contribute to each topic and what is known about each topic will change as new findings emerge; but the method of scientific research remains constant. The third chapter covers the elements of the scientific method and the use of scientific methodology by researchers in I/O psychology.

The second section of this text covers topics in Organizational Psychology (the O in the I/O), including work motivation, attitudes, groups, social structure, social processes, leadership, and stress. Much of this literature comes from the research of social scientists who view organizations as complex social systems. By starting with organizational psychology, the "big picture" of how organizations function is presented prior to moving on, in the second half of the text to the more applied issues that are the focus of personnel or industrial psychology (the I in I/O). For instance, the discussion of work motivation and social processes will set the stage for later discussions of performance appraisal and feedback. Despite this structure, each chapter stands alone and does not require the student to read any previous chapters. The only possible exception is the examination of research methods which probably should be assigned prior to the chapters in the second and third sections.

The basic component of the organization is the individual employee. It is appropriate then to begin this section with a consideration of work motivation and attitudes. Much of the interest in these topics has come from the potential role that unmotivated and dissatisfied employees may play in the economic competitiveness of an organization and an entire nation. For instance, productivity has declined in the U. S. over the last few decades. Is the declining motivation of the work force partly responsible? Do employees feel that their important needs are being met in their work, and what are effects of the frustration and satisfaction of needs on work behavior? Do employees expect that they will be rewarded for working hard and making other contributions to the organization and how do these expectations influence motivation? Do employees feel that they have been fairly treated and how do feelings of equity or inequity translate into job performance? Chapter 3 explores each of these questions and the process by which needs, expectations, and equity influence the effort that employees invest in their work.

The answers to these questions have important implications for how organizations go about managing their employees. Traditional management practices often assume that employees are passive and lack the ability to contribute creative ideas. The human relations approach has promoted the opposite view that all employees want challenging work and the opportunity to develop their skills. Research on motivation has empirically examined these assumptions and has provided a more realistic and complex view than provided in either the traditional or human relations approaches. Much of this research has focused on content issues such as what employees want, whereas other studies have addressed the process of motivation. Included in the chapter is a discussion of recent attempts to pull together the various theories of motivation and the practical implications of these efforts.

Motivation leads directly to the topic of attitudes toward work and the organization in Chapter 4. Some critics of modern management practices have claimed that today's workforce has become increasingly alienated and "turned off" by dehumanizing aspects of their jobs. There is a chapter on the work-related attitudes of job satisfaction, organizational commitment, and job involvement that examines alternative measures of these work-related attitudes, and the findings of research with these instruments. As shown in this chapter, the findings of research have not supported some widely held beliefs, such as the assumption that job satisfaction leads directly to good performance. Nevertheless, worker attitudes are crucial to understanding and predicting other important behaviors in the job, such as turnover.

I/O psychology is concerned with the well-being of the employee in addition to the performance of the organization and chapter 6 delves into the stress that employees experience as they attempt to fulfill the demands of their work roles. Work stress is considered to be epidemic among employees in many occupations but is it really as bad as the popular press makes it out to be? Chapter 6 will examine the personal and situational factors that can determine the physiological and psychological reactions of employees to unusual demands (sometimes called stressors). In addition to examining the antecedents and consequences of stress, this chapter also evaluates research on coping strategies and the applications of this work to helping employees manage stress in the workplace.

In contrast to the chapters on attitudes and motivation, which are concerned with behavior of individual employees, chapters 7, 8, and 9 are concerned with social behavior in the workplace. The importance of this topic becomes apparent when you consider that an organization is essentially a group of groups. Much of the activity in an organization consists of people in the process of communicating, influencing, competing, fighting, and helping. Social structures, such as roles and norms, emerge to add predictability to these processes. Much of the social behavior that can be observed in an organization comes as the result of the formal departments and other subunits that management has put together to get the work done. Just as important, however, are the informal relationships that emerge and sometimes conflict with formal social arrangements. Whether formal or informal in nature, groups often fail to achieve their potential. This chapter concludes with an examination of some of the interventions that are being used to improve group effectiveness in organizations.

Leadership involves all of the topics in the course and is perhaps the most controversial of the social psychological aspects of organizations. Although those who hold the formal positions of leadership are usually held responsible for the success of the organization, some organizational theorists have questioned whether leaders are really as important as most people seem to believe (see). Is leadership mainly in the mind of the beholder such that anyone who manages the right impressions can become a leader? Is leadership an outdated concept reflecting mainly the needs of followers to believe that someone is in charge? If leadership is important to the success of the organization, what can be done to improve the effectiveness of leaders? Is it primarily a matter of selecting the people with the right traits? Can I train people to show the right behaviors regardless of their traits?

Do great leaders transform rather than simply manage their followers? In exploring the research that has addressed these questions, I will show how the simplistic views of what makes an effective leader have been replaced by more complex contingency models. Essentially, these models state that the effectiveness of leadership depends on whether the traits and behaviors of the leader are appropriate to the situation. Different situations call for radically different types of leaders.

The third section of the text covers topics that are usually lumped under the title of personnel or industrial (the I in I/O) psychology. Included in this section are work analysis, employee selection, training, and performance appraisal. In contrast to the more theoretical slant of organizational psychologists, personnel psychologists tend to be more practically oriented, with much of the research devoted to developing techniques that can be used to improve the fit between employees and the organization.

Providing a "good fit" is in part an attraction problem in that you want to entice the most qualified people to seek employment in your organization. It is a selection problem in that once you interest people in applying for positions, you want to be able to choose the best qualified people. It is a placement problem in that once hired, you want to put people where they belong. It is a training problem in that once hired and placed, you want to instruct your employees so that they can perform the work properly. Work analysis is the foundation for all these activities. Chapter 11 covers the topic of work analysis. In other textbooks, this topic is usually part of the section on the "I" in I/O psychology. All the subsequent topics build on basic questions about work. What is a position, a job, a career, and occupation? What are the basic dimensions along which work can be described and compared? What are methods of analyzing work?

Another important step in providing a good fit is determining the standards of performance that employees are expected to attain in their work. Chapter 12 deals with alternative measures of employee performance and their uses in an organization. Measures of performance can be used in a variety of human resource management activities, including the rewarding, punishing, promoting, firing, and developing of employees. They also are used as criteria in research evaluating human resource management interventions. Several options are available to employers seeking to appraise performance. Performance appraisals can be objective or subjective, can be conducted by supervisors, peers, subordinates, customers, or the employees themselves, and can focus on results, process, or traits of the employees. As shown in the chapter, much of the performance appraisal that occurs in organizations relies on subjective ratings. The large amount of research on subjective rating scales has provided insight into the pros and cons of specific scales such as Behavioral Anchored Rating Scales (BARS). A point that emphasized, however, is that more attention needs to be given to the process of judging performance as opposed to developing the right scale. A particularly important application of performance appraisals is in providing feedback to employees. The chapter concludes with a consideration of some of the methods of providing feedback that appear to have great potential for improving performance effectiveness.

No matter how good staffing procedures might be in a company, the employees that a company attracts and selects will still have some 'rough edges' that need to be smoothed to provide a good fit to the work. The next chapter is concerned with training, a personnel function that is aimed at instilling the knowledge, skills, abilities, and attitudes needed to perform the work. As important as training is to the organization, it is often haphazard and wasteful in the way it is implemented. Chapter 13 is organized around a systems model that is presented as an ideal approach to training. An essential point of this model is that training is a subsystem within the organization and should be evaluated on the basis of how well it fulfills the needs of the larger organization. According to this model, training programs should be designed to fulfill objectives that are derived from a careful assessments of needs and then evaluated against how well they fulfill these needs and modified accordingly. A variety of on-the-job and off-the-job training techniques currently exist, and each has its advantages and disadvantages. The chapter reviews the pro's and cons of these various techniques, along with interventions to improve acquisition and transfer of what is learned. Although the training literature is not as well developed as the work on staffing, this is changing. The chapter on training will cover some of the exciting new developments that are likely to have dramatic effects on the practice of training in the future.

Staffing, which is the focus of chapters 14 and 15, is the chief activity of many I/O psychologists. A variety of selection techniques have been developed over this century that have proven quite valuable in screening prospective employees and predicting their future performance. These include measures of mental and physical abilities, biodata, personality questionnaires, work samples, assessment centers, structured interviews, and others. A major point in this chapter is that organizations should conduct research to evaluate the sensitivity, reliability, and validity of selection techniques. In actually using a selection instrument in making decisions about potential employees, other factors need to be taken into account, including how many people are currently succeeding, how many applicants you can reject out of those who apply, the cost of the procedure, and the fairness of the decisions. Much of this chapter will concentrate on selection, but in closing I will also give some attention to employee placement and recruitment.

The final chapter provides an overview of some major conclusions to be drawn from the previous chapters. As is always the case with any scientific endeavor, there are no final answers. Everything is a work in progress. I do not measure the success of this book against the number of definitive answers it provides to crucial questions such as how we motivate workers. Rather, I consider the standard of success to be the extent that readers are challenged, intrigued, and even provoked to seek their own answers. I sincerely hope that the reader shares the excitement associated with this relatively new field of psychology and the search for answers to questions surrounding human behavior at work.

This text builds on four previous books. William (Bill) C. Howell wrote a short volume entitled *Essentials of I/O Psychology* that was first published in the 1970s, followed by two revised editions that I co-authored. In the 1990s, I became first author of a new textbook, *Understanding I/O Psychology: An Integrated Approach* with Carla S. Smith and William C. Howell as second and third authors. Unfortunately, before the text could

be revised, Carlla became seriously ill and passed away. I considered a revision but without Carlla, neither Bill nor I had the heart to launch the revision. So the text remained dormant until Bill's untimely death in 2013, when I decided to try my hand at a new text. The product of these efforts is *Exploring Industrial and Organizational Psychology*. Although this is a new text, the contributions of both Carlla and Bill are apparent throughout. To the extent that this text proves intellectually stimulating, entertaining, or in some other way beneficial, they should share in the recognition. To the extent that the text falls short, I assume total responsibility and they deserve none of the blame.

## CHAPTER 1: WHAT IS I/O PSYCHOLOGY?



## Introduction

Industrial and Organizational (I/O) Psychology (also called Work and Organizational Psychology in Europe or simply Organizational Psychology) is the scientific study of how individuals and groups behave in the performance of work activities and in the context of organizations. It is also the application of this research to improving the effectiveness and the well being of people and the organizations in which they work. As implied in this definition, Industrial and organizational (I/O) psychology is a specialized field within the larger discipline of psychology. It is part science, contributing to the general knowledge base of psychology, and part application, using that knowledge to solve real-world problems. The business of I/O psychology is NOT simply business. I/O psychology is concerned with a variety of types of work including service, manufacturing, professional, intellectual, physical, paid and unpaid. I/O psychology is concerned with a variety of organizations including, but not limited to, business, governmental, military, religious, educational, union, and not-for-profit organizations. I/O psychology is concerned not only with how to increase the productivity and efficiency of workers in the performance of their tasks and the effectiveness of the organizations to which they belong, but also the health and well-being of individuals who perform work activities and society in general.

Psychology is not the only social science discipline that is concerned with these issues. Other social sciences including anthropology, sociology, political science, communications, and economics have made important contributions. Also, other specialties within psychology are concerned to some extent with the topic, most notably social psychology, personality, and psychometrics. The term Organizational Science is often used to refer to the interdisciplinary research and theory concerned with understanding the behavior of organizations and the people in these organizations. I/O psychology is one of several social sciences and psychological specialties contributing to the multidisciplinary effort. Despite the interdisciplinary nature of the field, I/O psychology is the dominant specialty that has taken a psychological approach to understanding human behavior at work and in organizations and is the focus of this text.

## I/O as a Specialty within Psychology

It is one thing to write a concise definition of I/O psychology and quite another to convey in concrete terms what those words actually mean. We have given you the definition; now we will try to make it come alive. A technical “field” such as I/O psychology really consists of several things. It is a core body of knowledge, a set of tools used to expand and apply that knowledge, a setting or context in which that expansion and application take place, a collection of people who identify with the field, and a variety of institutions that hold all these components together (e.g., professional organizations, journals, meetings, training programs).

This chapter first examines the professionals who identify themselves as I/O psychologists. What do they do? Where do they work? How much do they earn? The chapter then considers how I/O as a subdiscipline fits into the larger discipline of



psychology and other related fields outside of psychology. A final consideration is the defining characteristics of I/O psychology as a profession: the ethical principles and standards that I/O psychologists espouse, the content of the training in I/O psychology, and the professional associations that represent I/O psychologists.

### What Do I/O Psychologists Do?

If you were to follow some I/O psychologists around to learn what they do for a living, you would find them engaged in a wide variety of activities and working in a wide variety of organizations, as illustrated in table 1.1.

MANAGER, Organizational Development
DIRECTOR, Management, Education, & Leader Development
CAREER COACH
CONSULTANT in
Organizational Development
Organizational Effectiveness
Talent Management
Employee Relations
Evaluation and Assessment
Testing Programs
Learning and Performance
Selection Systems
Leadership Development
Training and Development
PRESIDENT Consulting Group, University, Corporation
SENIOR RESEARCH ASSOCIATE
BUSINESS PSYCHOLOGY
ASSOCIATE DEAN
SENIOR PERSONNEL PSYCHOLOGY
PERSONNEL PSYCHOLOGIST
PERSONNEL RESEARCH PSYCHOLOGIST
ORGANIZATIONAL EFFECTIVENESS MANAGER
CONSULTING HR PROFESSIONAL
HUMAN RESOURCES DIRECTOR
VICE PRESIDENT, GLOBAL LEARNING
DIRECTOR – TALENT PLANNING
ASSESSMENT MANAGER
ORGANIZATIONAL DEVELOPMENT MANAGER
SENIOR PERSONNEL ANALYST

Table 1.1: Sample Titles Held by I/O Psychologists

In their research and practical applications, I/O psychologists tend to specialize in one of two general areas often referred to as the “I” and the “O” in I/O psychology. They differ chiefly in the kinds of psychological content and techniques they use as well as in their general approach to organizational problems. Those taking the “I” approach tend to emphasize measurement and individual differences. They use quantitative methods to help organizations make the best use of their people by getting precise measures of both human and work characteristics and then applying those measures in human resource management. You will find them engaged in the design (and management) of recruiting, selection and training, the design and evaluation of compensation systems, and the analysis, description and evaluation of jobs. In contrast, those taking the “O” approach tend to rely on broad psychological theories in diagnosing and trying to correct organizational problems. Theories of social behavior and human motivation figure prominently in this strategy. For example, a common theme in “O” practice is that non-management employees ought to have some influence in decisions that affect them because people will work harder and stay more committed to goals that they understand and help set. Organizational psychologists help managers interact more effectively with the individuals and groups they manage, conduct attitude surveys of the workforce, design and evaluate procedures for communicating and motivating employees, implement and evaluate organizational development (OD) interventions such as team building, and help individuals cope with stress. Although there is a tendency for I/O psychologists to sort themselves into one or the other camp (the I and the O), it is in many ways a false dichotomy. Interventions that involve I-related activities almost always require attention to the larger organizational context. Likewise, O-related activities inevitably involve measurement and other I-related activities. A well-trained I/O psychologist is willing to crossover.

Approximately 60 - 70% of I/O psychologists work as practitioners with the remainder working mostly in academic settings as researchers and teachers. A SIOP survey provided more detail on the specific activities that distinguish practitioners and non-practitioners (Silzer, Cober, Erickson & Robinson, 2008). The members of the Society for Industrial and Organizational Psychology were surveyed and 1005 respondents replied, a 36% response rate. Respondents were asked the percentage of time they spent as a practitioner of I/O, as educators, and as researchers/scientists. Sixty-one percent indicated that 70% or more of their time was spent in practice and were defined as full-time practitioners. Approximately 10% identified themselves as non-practitioners. Of those who were non-practitioners, the mean percentage of time spent in science/research was 43.5 and the mean percentage of time in education was 39%. Of those who were practitioners, the mean percentage of time in science/research was 4.2% and the mean percentage in education was 1.2%. The respondents were given practice activities and asked how important each was to their work as a practitioner. The percentage of practitioners and nonpractitioners stating that each activity was important or very important is summarized in figure 1.1. The six most important activities for full time practitioners were

- Building relationships
- Consulting with and advising clients
- Managing work projects and administrative activities
- Implementing and delivering programs and / or tools
- Making presentations
- Developing and designing systems, methods and/or programs

The least important activities among practitioners were:

- Writing for a scientific journal
- Teaching courses or training programs
- Writing reports, articles, chapters
- Conducting primary research and data analysis

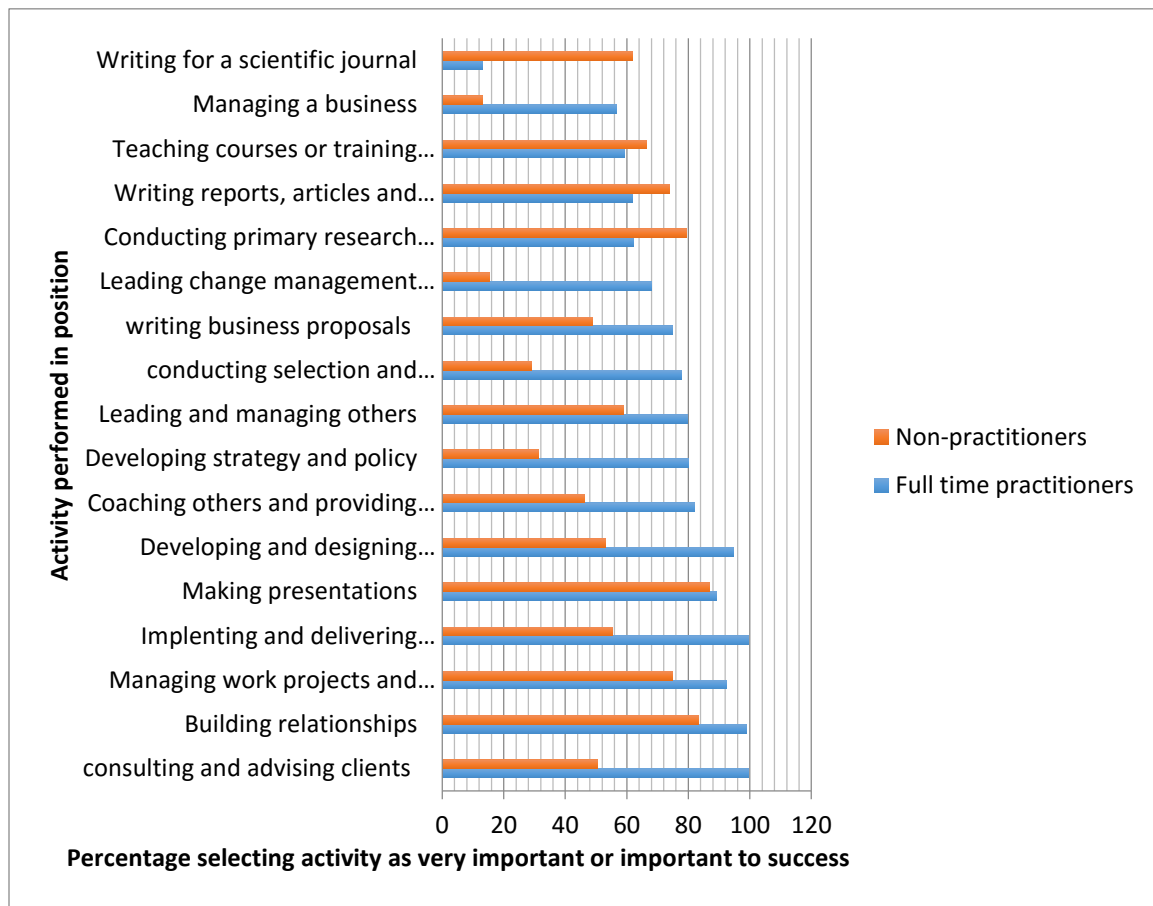


Figure 1.1: Activities Performed by I/O Psychologists

### Where Do I/O Psychologists Work?

Some I/O psychologists work full-time within one organization in performing these tasks. Others would perform some of the same functions but as consultants to a variety of

clients rather than as full-time employees of one organization. Moreover, their services might include diagnosing an organization's management problems and, when necessary, recommending and helping to bring about company-wide changes. Some of these consultants are totally self-employed, work for a consulting firm, or hold full-time academic appointments while consulting on the side. Still other I/O psychologists are found in university psychology laboratories, corporate research and development groups, advertising agencies, marketing departments, and government research organizations. Those so engaged would most likely work as scientists whose primary function, like that of biologists, physicists, or other social scientists, is generating knowledge. Some might try to answer simple applied questions such as what test to use to select employees, while others are concerned with "basic" issues such as what motivates people to work. Most are trying to answer questions that lie somewhere between these extremes. Regardless of scope or focus, all of them would use scientific methods such as those presented in the next module to gather new information, rather than rely on what they already know to solve problems. And finally, of course, some teach in a university psychology department or business school, management training or executive development program, or some other education or training setting. Most academic I/O psychologists combine teaching, research, and consulting. The chart below is a breakdown of the specific places of employment based on a survey of the SIOP membership.

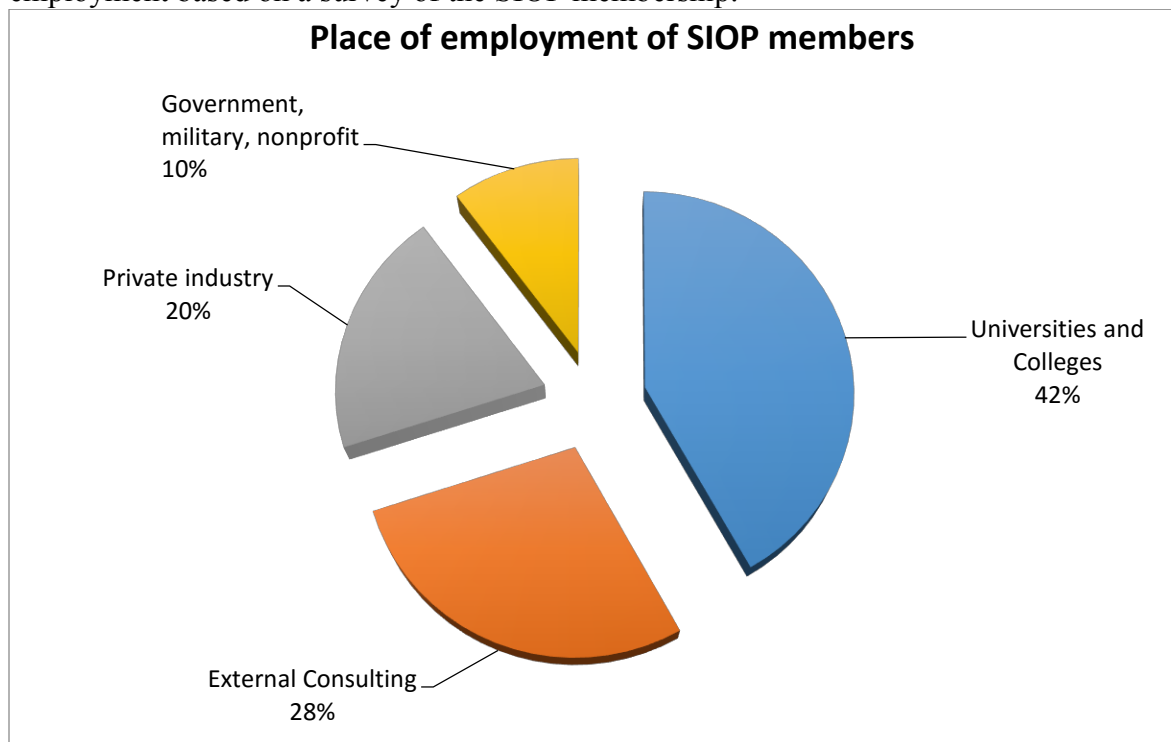
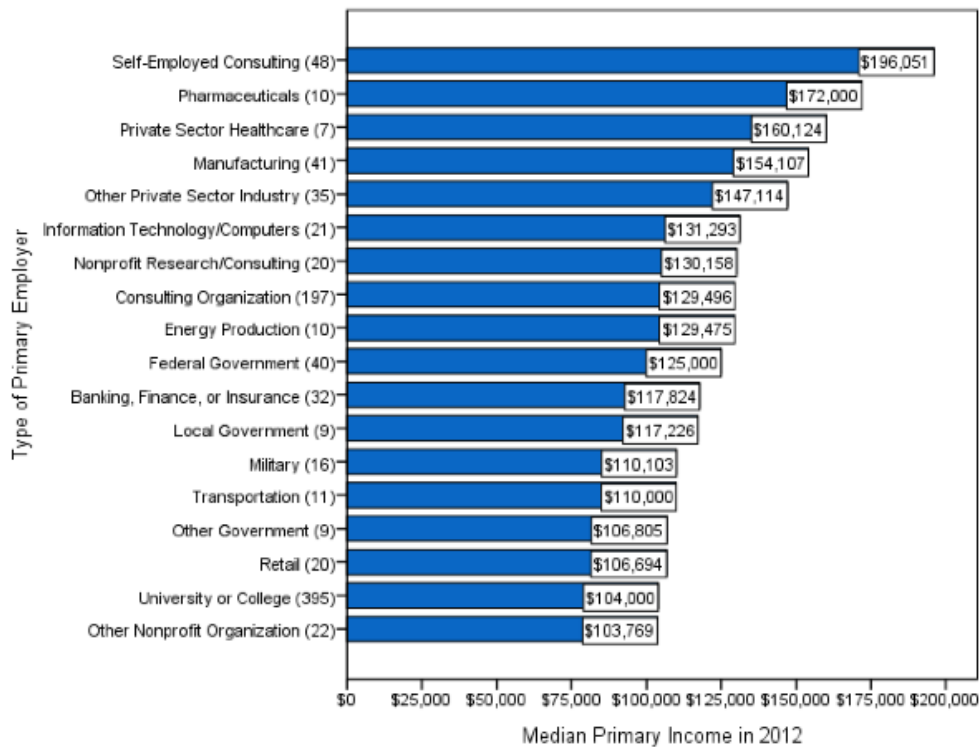


Figure 1.2: Where do U. S. I/O Psychologists Work?

#### How Much Do I/O Psychologists Earn?

Of all the psychological specialties, I/O psychologists are the highest paid. A survey was conducted in early 2013 in which 4,073 members of the Society for Industrial and Organizational Psychology were contacted and asked to complete a survey regarding

their 2012 incomes (see figure 1.3). There was a response rate of 32.3%. The analyses were limited to 1,120 respondents who worked full-time. When broken down by place of employment, the median primary salaries ranged from a high of \$196,051 reported by those involved in self-employed consulting to approximately \$104,00 to \$103,00 reported by those employed in nonprofit organizations and in universities/colleges.



\* I/O psychologists in Colleges, Universities, and Professional Schools are typically on nine-month contracts and frequently supplement their academic income through consulting and other applied activities.

Figure 1.3: Median Salaries of I/O Psychologists

It is important to note that the salaries for university/college faculty are typically nine-month salaries. Also, some employed as faculty supplement their primary income with consulting activities. The salaries are substantially higher in business schools than in psychology departments, and where Doctorate degrees are granted than in schools where only bachelors or masters degrees are granted (Khanna, Medsker, & Ginter, 2012). Having observed this wide variation in activities and work settings, you might well question whether it makes sense to lump all these professionals together under the title of "I/O psychologist." What, if anything, do they share that distinguishes them from other professionals who do many of the same things? The answer, very simply, is psychology. While it is true that psychological principles and methods are used widely by other specialists and that many I/O psychologists focus on particular organizational functions, I/O psychologists share an important bond with the larger discipline of psychology. By

training, outlook, and professional affiliation, even the most specialized practitioner is first a psychologist. To understand why this connection is important, we must now take a closer look at the parent discipline.

The largest and most widely recognized specialties are clinical and counseling psychology. They provide similar mental health services to individuals and groups for somewhat different populations ("deviant" vs. "normal") and in somewhat different settings (e.g., mental hospitals vs. counseling centers). By tradition, four psychology specialties are currently recognized by most professional and legal bodies as official practice fields: clinical, counseling, school, and I/O. Collectively, they account for over 90% of the psychologists who offer services to the public. Of these, I/O is by far the smallest (approximately 3,000 practitioners) and most distinct from the others (Rosenfeld, Shimberg, & Thornton, 1983). Psychologists consist of those who provide direct healthcare services (health-care providers or HCPs) and those who do not (Howard and Lowman, 1985). By this definition, I/O psychologists are not HCPs and are not involved in the diagnosis of and treatment of behavioral and mental disorders; clinical, counseling, and many school psychologists are. We shall have more to say about this in a moment.

Psychology also is differentiated according to field of specialization. But because there is no universally accepted basis for defining and classifying specialties, psychology has a rather long and confusing list of such fields. Some, such as child psychology, are defined largely by a focal population; others, such as developmental psychology, by the emphasis on how people change over time; others, such as experimental psychology, by the scientific methods used; and still others, such as school psychology, by the setting in which the field is practiced. Like school psychology, I/O psychology is identified primarily by its focus on particular settings in which the human behavior is studied. In the case of I/O, these settings are work and the organizations in which the work is performed.

### The Scientist-Practitioner Model

There is a scientific component and a practice component to I/O psychology. The same is true of psychology as a discipline, and this is one of its most distinctive features. By contrast, other practice fields, such as engineering or medicine, are largely independent of the scientific disciplines (such as physics and biochemistry) on which they depend for basic knowledge. Psychology is concerned broadly with how people think, act, and feel—in more technical terms, with cognition, behavior, and affect. Its scientific component seeks to understand these functions; its practice component seeks to use what is learned to benefit individuals, groups, and society. The experimental, developmental, or social psychology, are dominated by science but a distinguishing characteristic of the applied psychological specialties such as clinical and school psychology is the scientist-practitioner model (Howard, Pion, Gottfredson, Flattau, Oskamp, Pfaffdin, Bray, & Burstein, 1986). Similar to other applied psychological specialties, I/O psychologists have always taken pride in maintaining a balance between the two orientations, both in its scope of activities and in the training of its professionals. It prepares the I/O psychologist

to assume either role, and promotes the point of view that a mix of the two is vastly superior to either for even the most practical of purposes.

The training model promoted by SIOP is that I/O professionals should receive training as both scientists and practitioners. To enter the field, most I/O psychologists earn the PhD degree and acquire supervised experience in one of the nonacademic work settings described earlier. For years the scientist-practitioner model was the unchallenged philosophy behind all professional training in psychology, for the health-care practitioner as well as for the other applied specialties. Today, however, the health-care practitioner (HCP) community is badly split between those who favor the traditional model and a growing constituency who prefer a more practice-oriented "scholar-practitioner" or pure "practitioner" model culminating in a professional doctorate—the PsyD degree (Stricker, 1975). Trivial as arguments over training models and degree labels appear on the surface, they reflect profound philosophical differences that threaten to reshape the whole discipline of psychology (American Psychologist, 1987; Schover, 1980). Although these differences also exist within I/O, the I/O field still stands apart from most of the psychological specialties in maintaining a firm commitment to combining science and practice. As a practice, I/O contributes to practical interventions to improve the effectiveness of people and organizations. As a science, I/O contributes to psychology's larger mission of understanding human cognition, behavior, and affect. The importance of understanding the role of work to a basic understanding of human psychology is made apparent when one considers that almost 90% of the adults in the industrialized nations work for organizations (Perrow, 1986). We spend nearly half our waking hours at work, and what happens there directly affects the way we think, act, and feel (London & Moses, 1990).

If understanding human behavior and experience is its goal, the science of psychology must concern itself with work-related phenomena. Questions arising from the workplace are many and fundamental. What does work mean to people? How important are the loss of a job or opportunities for advancement to their self-esteem? Are attitudes changing on the relative importance of security, pay, personal growth opportunities, the social atmosphere at work, and other job features? What constitutes good management? How do multiple roles affect women employees? What is the effect of dual breadwinners on the family? How do corporate mergers and acquisitions affect the stress level of employees? The list is virtually endless. In their role as scientists, many I/O psychologists carry out research on these basic issues. In addition, by exposing and highlighting such problems, they encourage the interest of other branches of psychology.

### I/O is a Profession as Well as a Job

For a long time, profession was used to refer to a handful of occupations such as the law, medicine, the clergy, engineering, and accounting. The boundaries between what are considered professions and nonprofessions are increasingly blurred as a wider variety of occupations attempt to professionalize (Gorman & Sandefur, 2011). Rather than saying some occupations are professions and others are not, a more accurate statement is that professionalism is a continuum with occupations varying on professionalism. Three

essential characteristics define this continuum: a body of specialized knowledge, technical autonomy, and a normative orientation to the service of others. I/O psychology is clearly a profession that embraces all of these attributes.

#### A body of specialized knowledge: expertise

I/O psychology is based on a body of knowledge consisting of the accumulated findings of scientific research and theory. This knowledge provides the basis for the solution of practical problems. In contrast, those who base their practical actions on the internet, commonsense, personal experience, or authority figures are not acting professionally. An entire chapter in this text focuses on what constitutes science and non-science. I/O psychology is clearly a science. Not all research and theory becomes part of the body of knowledge providing the core of I/O psychology. As in any respectable scientific discipline, the assertions of I/O psychologists are subjected to peer review and rigorous scrutiny. Most of what I/O researchers discover is published in journals such as the *Journal of Applied Psychology*, *Personnel Psychology*, *Administrative Sciences Quarterly*, *Academy of Management Review*, *Academy of Management Journal*, *Organizational Behavior and Human Decision Processes*, *International Review of Applied Psychology*, *Journal of Organizational Behavior*, *Journal of Business Psychology*, and *Journal of Occupational Psychology*. Other specialties have their own professional journals. Articles published in these and the other major I/O journals are reviewed by other scholars and only accepted for publication if they meet the highest standards of research excellence. Only 10 - 20% of manuscripts submitted to these journals are actually accepted and published. Once published, research and theory of I/O psychologists are subject to challenges that can lead to modification or outright rejection.

#### A normative orientation to the service of others: ethics

I/O psychology also takes a normative orientation in the form of a code of ethics. Not everyone who offers psychological services to the public is trustworthy. Most potential clients, including large organizations, lack sophistication in psychology and are vulnerable to claims by unscrupulous practitioners (primarily nonpsychologists, the author is happy to say) who have opportunistically promoted questionable products and services. Managers faced with chronic problems in morale, production, or turnover find the promise of a quick and affordable cure irresistible even when the cure is unrealistic. Consequently, charlatans have prospered, usually at the expense of the organization, society at large, and the reputation of legitimate psychology. A case in point is the proliferation of tests and claims made for the validity of these tests. The claims made for tests that purport to identify dishonest or unproductive employees are frequently exaggerated, and many decent people have suffered personal indignities and financial loss as a result of their misuse. As a profession, I/O psychologists in the United States adhere to the ethical principles of the American Psychological Association, the oldest and largest professional organization representing psychologists. These general principles are described as follows:

Ethical principles and standards of the American Psychological Association. The code of ethical conduct of the American Psychological Association states five general principles



and ten categories of ethical standards. What follows is quoted from the general principles section of the code (American Psychological Association, February 20, 2010, pp. 3 - 4).

*“General Principles, as opposed to Ethical Standards, are aspirational in nature. Their intent is to guide and inspire psychologists toward the very highest ethical ideals of the profession. General Principles, in contrast to Ethical Standards, do not represent obligations and should not form the basis for imposing sanctions. Relying upon General Principles for either of these reasons distorts both their meaning and purpose.”*

*“Principle A: Beneficence and Nonmaleficence. Psychologists strive to benefit those with whom they work and take care to do no harm. In their professional actions, psychologists seek to safeguard the welfare and rights of those with whom they interact professionally and other affected persons, and the welfare of animal subjects of research. When conflicts occur among psychologists' obligations or concerns, they attempt to resolve these conflicts in a responsible fashion that avoids or minimizes harm. Because psychologists' scientific and professional judgments and actions may affect the lives of others, they are alert to and guard against personal, financial, social, organizational, or political factors that might lead to misuse of their influence. Psychologists strive to be aware of the possible effect of their own physical and mental health on their ability to help those with whom they work.”*

*“Principle B: Fidelity and Responsibility. Psychologists establish relationships of trust with those with whom they work. They are aware of their professional and scientific responsibilities to society and to the specific communities in which they work. Psychologists uphold professional standards of conduct, clarify their professional roles and obligations, accept appropriate responsibility for their behavior, and seek to manage conflicts of interest that could lead to exploitation or harm. Psychologists consult with, refer to, or cooperate with other professionals and institutions to the extent needed to serve the best interests of those with whom they work. They are concerned about the ethical compliance of their colleagues' scientific and professional conduct. Psychologists strive to contribute a portion of their professional time for little or no compensation or personal advantage.”*

*“Principle C: Integrity. Psychologists seek to promote accuracy, honesty, and truthfulness in the science, teaching, and practice of psychology. In these activities psychologists do not steal, cheat, or engage in fraud, subterfuge, or intentional misrepresentation of fact. Psychologists strive to keep their promises and to avoid unwise or unclear commitments. In situations in which deception may be ethically justifiable to maximize benefits and minimize harm, psychologists have a serious obligation to consider the need for, the possible consequences of, and their responsibility to correct any resulting mistrust or other harmful effects that arise from the use of such techniques.”*

*“Principle D: Justice. Psychologists recognize that fairness and justice entitle all persons to access to and benefit from the contributions of psychology and to equal quality in the processes, procedures, and services being conducted by psychologists. Psychologists exercise reasonable judgment and take precautions to ensure that their potential biases, the boundaries of their competence, and the limitations of their expertise do not lead to or condone unjust practices.”*

*“Principle E: Respect for People’s Rights and Dignity. Psychologists respect the dignity and worth of all people, and the rights of individuals to privacy, confidentiality, and self-determination. Psychologists are aware that special safeguards may be necessary to protect the rights and welfare of persons or communities whose vulnerabilities impair autonomous decision making. Psychologists are aware of and respect cultural, individual, and role differences, including those based on age, gender, gender identity, race, ethnicity, culture, national origin, religion, sexual orientation, disability, language, and socioeconomic status and consider these factors when working with members of such groups. Psychologists try to eliminate the effect on their work of biases based on those factors, and they do not knowingly participate in or condone activities of others based upon such prejudices.”*

In addition to the general principles, the American Psychological Association’s ethical code sets forth ethical standards which are enforceable.

1. Resolving ethical issues. Psychologists take reasonable steps to resolve ethical issues. Particularly relevant to I/O psychologists is standard 1.03. According to this standard, *“If the demands of an organization with which psychologists are affiliated or for whom they are working are in conflict with this Ethics Code, psychologists clarify the nature of the conflict, make known their commitment to the Ethics Code, and take reasonable steps to resolve the conflict...Under no circumstances may this standard be used to justify or defend violating human rights (American Psychological Association, 2010, p. 4).*
2. Competence. Psychologists stay within their areas of competence in providing services, teaching, consulting, and conducting research. When they lack competence in an area, they take steps “to obtain the training, experience, consultation, or supervision necessary to ensure the competence of their services, or they make appropriate referrals (American Psychological Association, 2010, p. 5).
3. Human relations. Psychologists do not engage in unfair discrimination and sexual harassment and do not harm, demean, or harass those with whom they have professional relationships. They also avoid multiple relationships that might impair, exploit, or harm persons with whom they have professional relationships. They provide informed consent to research participants and clients. Especially relevant to I/O psychologists employed by organizations provide information to

clients prior to the services that includes the nature and objectives of the services, who will have access to information gathered, and any limits to confidentiality.

4. Privacy and confidentiality. Psychologists take reasonable steps to protect the confidentiality of any information gathered in their research and consulting. If they disclose confidential information they obtain the consent of the persons involved. There are exceptions such as where the law mandates or permits disclosure and disclosure is necessary to fulfill valid objectives such as protecting the client or providing services. In their public communications in lectures, media interviews, and writings, they take steps to conceal the identity of clients, including research participants, and organizations or obtain consent for the disclosures.
5. Advertising and other public statements. Psychologists can advertise their services but they take care to convey truthful information and avoid false, deceptive, or fraudulent statements. They take steps to ensure that their public statements are used appropriately by the media and they make sure that their training, education, licensing, and other credentials are accurately described.
6. Record keeping and fees. Psychologists create and maintain records to facilitate the provision of services by other professionals, to allow replication of research, to ensure accuracy in billing, and to comply with the law.
7. Education and training. Teachers and other educators make sure that their courses and programs are accurately described, provide the appropriate knowledge and experiences, and convey the content set forth in course syllabi and program descriptions. Instructors protect the confidentiality of students and in their teaching convey current, accurate information on the topic of the instruction. “Psychologists do not engage in sexual relationships with students or supervisees who are in their department, agency, or training center or over whom psychologists have or are likely to have evaluative authority” (American Psychological Association, 2010, p. 10).
8. Research and publication. Researchers obtain informed consent from those participating in their research. The informed consent states the purpose of the research, possible consequences, any potential risks or harm, and provides persons who can be contacted if there are questions. In informed consent participants can refuse to participate or withdraw during the study. Both the benefits and costs of the research are described, and any limits to confidentiality. There are some exceptions in which informed consent is not required such as where the informed consent might create harm, naturalistic observations, or research on educational practices or curricula in educational settings. Also, informed consent is not required in “*the study of factors related to job or organization effectiveness conducted in organizational settings for which there is no risk to participants’ employability, and confidentiality is protected*” (American Psychological Association, 2010 p. 10).

9. Assessment. When psychologists convey opinions, recommendations, and assessments they base their statements on information and techniques that are sufficient and adequate to substantiate their conclusions. Where they cannot obtain adequate information, they make clear the impact on the validity and reliability of their judgments and limit the conclusions they draw. *“Psychologists use assessment instruments whose validity and reliability have been established for use with members of the population tested. When such validity or reliability has not been established, psychologists describe the strengths and limitations of test results and interpretation”* (American Psychological Association, 2010, p. 12). Psychologists obtain informed consent from participants who are assessed when it is mandated by law or governmental regulations or *“implied because testing is conducted as a routine educational, institutional, or organizational activity (e.g., when participants voluntarily agree to assessment when applying for a job)”* (American Psychological Association, 2010, p. 12). Psychologists explain assessment results to those assessed. When this is not possible the lack of explanation is explained to those assessed prior to the assessment.
10. Therapy. This is relevant to clinical psychologists, but is not relevant to most I/O psychologists. Engaging in therapy violates the boundaries of the competence for most I/O psychologists, unless they obtain special training and supervision in clinical psychology. Likewise, clinical psychologists do not engage in I/O psychological practices unless they have the necessary training and experience.

Ethical principles in other countries. Similar to the U. S. Psychological Principles and Standards, psychologists in many other countries have ethical codes to guide their research and practice. The International Union of Psychological Science has identified over sixty ethical codes associated with professional organizations representing psychologists around the world (see <http://resources.iupsys.net/iupsys/index.php/ethics/compendium-of-codes-of-ethics-of-national-psychology-organizations>). Although the content of these codes and the procedures used in enforcing them varies across professional organizations, the basic objective is the same: psychologists impose on themselves standards and principles of conduct as part of their self-governance.

#### Technical autonomy: self-governance in professional associations

The members of a profession attempt to exert autonomy in their research and practice by joining together in professional associations. These associations establish professional standards and ensure that members adhere to them. The Society for Industrial and Organizational Psychology (SIOP) is the major professional association representing I/O psychologists in the United States. Similar associations are found in other countries. SIOP is a division within American Psychological Association (APA) and adheres to the ethical and other professional standards that apply to all APA members such as the ethical principles and standards. In addition, SIOP has generated other guidelines and standards that apply more specifically to I/O psychologists. These include guidelines for training in I/O and principles for the validation of selection procedures.

Table 1.2 lists the competencies that I/O psychologists should have as recommended by the Society for Industrial and Organizational Psychology (SIOP), the field's chief professional organization. As you can see, the list runs the gamut from HRM functions (e.g., staffing, compensation) to OD functions (e.g., attitude surveys, conflict resolution). HRM and OD approaches originated in different philosophies, but they have moved closer together in practice.

Core competencies:
1. Ethical, Legal, and Professional Issues
2. Statistical Methods/Data Analysis
3. Measurement of Individual Differences
4. Criterion Development
5. Job Analysis Job and Task Analysis
6. Performance Appraisal
7. Employee Selection,
8. Training:
9. Multivariate Statistics
10. Work Motivation
11. Attitude Theory
12. Small Group Theory and Process
13. Organization Theory
14. Organizational Development
15. Research Methods
Optional (desirable but not essential):
1. Career Development Theory
2. Human Performance/Human Factors
3. Consumer Behavior
4. Compensation and Benefits
5. Industrial and Labor Relations

Table 1.2: Competencies that an I/O Psychologists Should Possess According to the Society for Industrial and Organizational Psychology

A competent practitioner might prefer one set of techniques to another, but it is unlikely that he or she would fail to consider the possibilities afforded by the alternative set. There is no standard way of packaging either set of functions within the formal structure of work organizations. Some firms have personnel departments that perform both OD and HRM functions; some house HRM activities in one office (e.g., personnel) and OD functions in another (e.g., management development); some maintain only one set of functions; some maintain neither and rely heavily on outside consultants or Inside nonprofessionals.

The practice of psychology also is subject to both legal regulation, like medicine or law. State laws require that psychologists meet certain educational and competency standards to practice, and special licensing boards set and enforce these standards. Additionally, a professional ethics code mandates staying within one's specialized areas of competence. Thus, at least some assurance of competence is available merely by determining whether a practitioner is licensed or certified as a psychologist by the state. Since states differ in their policies regarding licensure for nonhealth care-practitioner (HCP) specialties, only about a third of the I/O psychologists in the U.S. are licensed (Howard, 1990). From the consumer's standpoint, a simple call to the ethics committee of the state psychological association or the American Psychological Association (APA) can often establish the legitimacy of services or credentials being offered by a practitioner.

### Becoming an I/O Psychologist

The trend in psychology, like most scientific disciplines, has been toward increasingly narrow specialization, a condition that has limited this sort of healthy interaction (Altman, 1987). If one goes back earlier in the history of I/O psychology, one will find far fewer educational programs dedicated specifically to the field of I/O. One will also find that many self-proclaimed I/O psychologists did not even specialize in the field during their graduate training. Today most of those identifying themselves as I/O psychologists received their training in one of the I/O Ph. D. or master's programs.

So what do you need to do if you want to pursue a career in I/O? First of all, you will need a graduate degree. Although there are positions available to those with only a bachelor's degree in some Human Resource Management positions, becoming an I/O psychologist requires either a masters or a doctorate degree. The typical Ph. D. program requires about 5 years. The first two years consists of course work culminating in a Master's Thesis in year 2 or 3. Some programs require an internship along the way. In year 3 or 4 students must pass comprehensive exams (sometimes referred to as qualifier or candidacy exams). In years 4 and 5 students propose and conduct dissertation research and defend the written dissertation before their committee. The doctoral committee consists of four or five faculty persons, one of whom supervises the student. Masters programs are usually 2 or 3 years in duration and consist primarily of coursework and typically an internship or some other practical experience. Some terminal master's programs also require a written thesis consisting of original research and defended before a master's committee.

If you are considering a masters or Ph. D. program in I/O psychology you should take an I/O psychology course as an undergraduate. Not all graduate programs require this but taking the course will provide a realistic preview of what the field is about and what I/O psychologists do. If after taking the course you are still interested in becoming an I/O psychologist, you should prepare with a well-rounded set of undergraduate courses. A good combination would be a psychology degree with courses in statistics and research methods. Experience in research is also a plus. What is not necessary is a specialization in I/O at the undergraduate level. One, possibly two courses in I/O are enough. A broad

liberal arts background is better preparation as an undergraduate. Specialization comes once you are in graduate school. Majoring in psychology is not always required, although it seems to be a requirement in the majority of graduate programs in I/O. If you do not major in psychology, you should at least take introductory, social, statistics, and research methods.

It is also important to acquire some research experience as an undergraduate, perhaps by completing an undergraduate thesis or working in a faculty person's laboratory either for coursework or on a volunteer basis. Any area of psychology will typically suffice. Most graduate programs in the author's experience do not require that you have research specifically in I/O psychology. Because letters of reference are important in gaining admission to a program, you should become involved in activities that will establish contact with faculty. Join Psi Chi (the honorary psychology society) and the Psychology Club in your department. Volunteer to help out in departmental events, interact with graduate students, and attend departmental presentations by faculty in your department and invited guest speakers. Having some practical experience in a business or some other organization is a nice touch but in the experience of the author, admission decisions are primarily based on GPA, GRE scores, research experience, and faculty references.

Needless to say you will need good GRE scores and grades. It is strongly recommended that any undergraduate thinking of applying to graduate schoolwork as a teaching and/or research assistant for a faculty person. Most graduate programs require the Graduate Record Exam and a few also require the specialized exam in psychology. It is wise to take the GRE in your junior year so that you will have time to repeat the exam if your scores the first time around are low. Apply to graduate programs in the fall of your senior year. Most schools have their deadlines from December through February. Particularly important are your recommendations. Letters from graduate students, friends, ministers, and family count for little in graduate admissions. This brings me back to the importance of working for a faculty person as a research and/or teaching assistant. Working for an I/O psychologist is not especially important. More important is being able to show that you have worked in a lab collecting, coding, and analyzing data.

Also important is the personal statement in the application. Obtain feedback from peers, graduate students, and faculty advisors. This statement should address why you are interested in I/O psychology, your research experiences, and your goals. Applicants should probably be overly specific in stating future goals. If you are absolutely sure that you want to go to work for a large computer firm in the HR department, go ahead and state that. But most students modify their aspirations as they progress through their graduate programs. Allow some room for changing your mind. If you are interested in working with a particular faculty person, it is worth mentioning this, but it is often wise to mention more than one in the event that this individual is not accepting students. Do not try to be cute in your personal statement. In my experience, personal statements that go into too much personal detail can hurt the applicant's chances. Admissions committees are more interested in how likely the applicant will demonstrate seriousness and dedication to research and coursework as a graduate student. They are not interested in applicant rather than his hobbies, travels, and love life.

A variety of social science disciplines are involved in the attempt to understand human behavior at work and in organizations in addition to psychology. These include anthropology, sociology, economics, communications science, labor relations, and management, to name a few. Each of these fields offers specialization that resemble in some respects the focus of I/O psychologists on work and organizations. Business schools offer programs in Organizational Behavior (OB) and Human Resource Management (HRM) that attempt to provide an interdisciplinary coverage by employing as faculty not only I/O psychologists but a variety of other social scientists. If you are especially interested in the application of psychology to organizations and work, obtaining a degree in I/O psychology is the preferred route to take. However, if you are more interested in an interdisciplinary approach to the topic and want more exposure to the fields of business and management, then you should seriously consider an OB or HRM degree in a business school.

### The Future Looks Bright for I/O Psychology

As noted in Figure 1.5, the United States Bureau of Labor Statistics declared in 2014 that I/O psychology ranked number one in the 20 fastest growing occupations in the United States ([http://www.bls.gov/emp/ep\\_table\\_103.htm](http://www.bls.gov/emp/ep_table_103.htm)). This ranking was based on projections of where the occupation was projected to be in terms of number of employees by 2022. This projected growth reflects in part the fact that I/O is the smallest of the occupations listed below, so that large percentage increases can be shown from relatively small absolute increases. However, the attention given to I/O also reflects the growing importance in a variety of organizations of the skills that I/O psychologists possess.

The growth of I/O psychology is also indicated by the rapid globalization of the applications of scientific psychology to work and organizations. In addition to all the European and North American countries, one can find I/O research and application underway in these countries and many others around the world (<http://www.siop.org/tip/apr12/12thompson.aspx>).

- \*\*\* China (<http://www.siop.org/tip/oct11/16thompson.aspx>),
- \*\*\* India (<http://www.siop.org/tip/April10/20thompson.aspx>),
- \*\*\* Peru (<http://www.siop.org/tip/april11/11thompson.aspx>)
- \*\*\* Greece (<http://www.siop.org/tip/oct09/12thompson.aspx>)
- \*\*\* Croatia (<http://www.siop.org/tip/july12/16thompson.aspx>)
- \*\*\* Ghana ([http://www.siop.org/tip/Jan13/13\\_spotlight.aspx](http://www.siop.org/tip/Jan13/13_spotlight.aspx))
- \*\*\* Philippines (<http://www.siop.org/tip/oct12/13spotlight.aspx>)



OCCUPATION	GROWTH RATE, 2012-22	2012 MEDIAN PAY
<a href="#">Industrial-organizational psychologists</a>	53%	\$83,580 per year
<a href="#">Personal care aides</a>	49%	\$19,910 per year
<a href="#">Home health aides</a>	48%	\$20,820 per year
<a href="#">Insulation workers, mechanical</a>	47%	\$39,170 per year
<a href="#">Interpreters and translators</a>	46%	\$45,430 per year
<a href="#">Diagnostic medical sonographers</a>	46%	\$65,860 per year
<a href="#">Helpers—brickmasons, blockmasons, stonemasons, and tile and marble setters</a>	43%	\$28,220 per year
<a href="#">Occupational therapy assistants</a>	43%	\$53,240 per year
<a href="#">Genetic counselors</a>	41%	\$56,800 per year
<a href="#">Physical therapist assistants</a>	41%	\$52,160 per year
<a href="#">Physical therapist aides</a>	40%	\$23,880 per year
<a href="#">Skincare specialists</a>	40%	\$28,640 per year
<a href="#">Physician assistants</a>	38%	\$90,930 per year
<a href="#">Segmental pavers</a>	38%	\$33,720 per year
<a href="#">Helpers—electricians</a>	37%	\$27,670 per year
<a href="#">Information security analysts</a>	37%	\$86,170 per year
<a href="#">Occupational therapy aides</a>	36%	\$26,850 per year
<a href="#">Health specialties teachers, postsecondary</a>	36%	\$81,140 per year
<a href="#">Medical secretaries</a>	36%	\$31,350 per year
<a href="#">Physical therapists</a>	36%	\$79,860 per year

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Figure 1.4: I/O Psychology is the Fastest Growing Occupation

One of the strengths of I/O psychology is that there are a wide variety of job opportunities available to those who enter the field. Academic I/O psychologists are found in not only psychology departments, but also in business schools, communication departments, medical schools, and even law schools. Indeed, there is concern among some in the I/O field that most graduates in I/O are pursuing business school positions where the salaries are higher than psychology faculty positions. Although business schools do sometimes prefer that faculty have degrees in business areas, most of the top business schools have hired I/O psychologists because of their expertise in research and the quality of their training. I/O psychologists who pursue non-academic careers are found in a very diverse range of work settings including consulting firms, business organizations, the military, schools (as human resource management or organizational development specialists), and even in religious organizations. The minimum degree that you need to practice I/O psychology in nonacademic settings is a master's degree, but

many applied positions require a Ph. D. This is especially true of the management consulting firms. Masters level I/O psychologists are more often found in positions involving a narrower application of technical skills such as in test development. Most academic positions require a Ph. D. The exceptions are community colleges and some teaching oriented colleges.

### Some points to ponder

1. Organizational Science was identified as a multi-disciplinary effort to understand the behavior of humans at work and the organizations in which they are employed. How do you think a psychologist might differ in his or her approach to this endeavor from a sociologist, an economist, a political scientist, or an anthropologist?
2. Review the activities of I/O psychologists listed in figure 1.1. Which of these would you most and least like to do?
3. Explore the websites for the following three professional associations of psychologists involved in the scientific study of the psychology of work and organizations:
  - a. the Society for Industrial and Organizational Psychology (<http://www.siop.org>) for U. S. psychologists.
  - b. the European Association of Work and Organizational Psychology (EAWOP) for European psychologists (<http://www.eawop.org>).
  - c. the College of Organisational Psychology (COP) for Australian psychologists (<http://groups.psychology.org.au/cop/>)

Identify similarities and differences in how these websites describe the profession.

4. Review some of the ethical codes of psychologists around the world. Here are 60 codes. What are some of the similarities and differences among the codes?  
<http://resources.iupsys.net/iupsys/index.php/ethics/compendium-of-codes-of-ethics-of-national-psychology-organizations>
5. Assume for the moment that you have decided to become an I/O psychologist. Outline your strategy for preparing yourself for this career.
6. Why do you think I/O psychology is now among the fastest growing occupations according to the U. S. Bureau of Labor Statistics?

### Conclusions

I/O psychologists are a diverse lot—educators, researchers, consultants, and technical specialists who perform a variety of OD and HRM functions for management in virtually every kind of organization. What binds them together and distinguishes them from others who fill similar roles is their grounding in the specialized knowledge, methods, institutions, and culture of psychology. You now have a general understanding of what I/O psychology is and what it is not. It is a specialty within the general field of psychology and it is this emphasis on psychology that distinguishes it from related fields such as Organizational Behavior and Human Resource Management. It adheres to the scientist-practitioner model and as such is concerned with not only science but also practice. As a profession, it adheres to a code of ethics governing both research and practice. And the future looks bright with I/O psychologists found in a wide variety of work settings and involved in a diverse set of activities. The next chapter provides an

overview of the history of I/O psychology and how it developed in the context of historical events and societal trends.

## CHAPTER 2: A HISTORY OF I/O PSYCHOLOGY

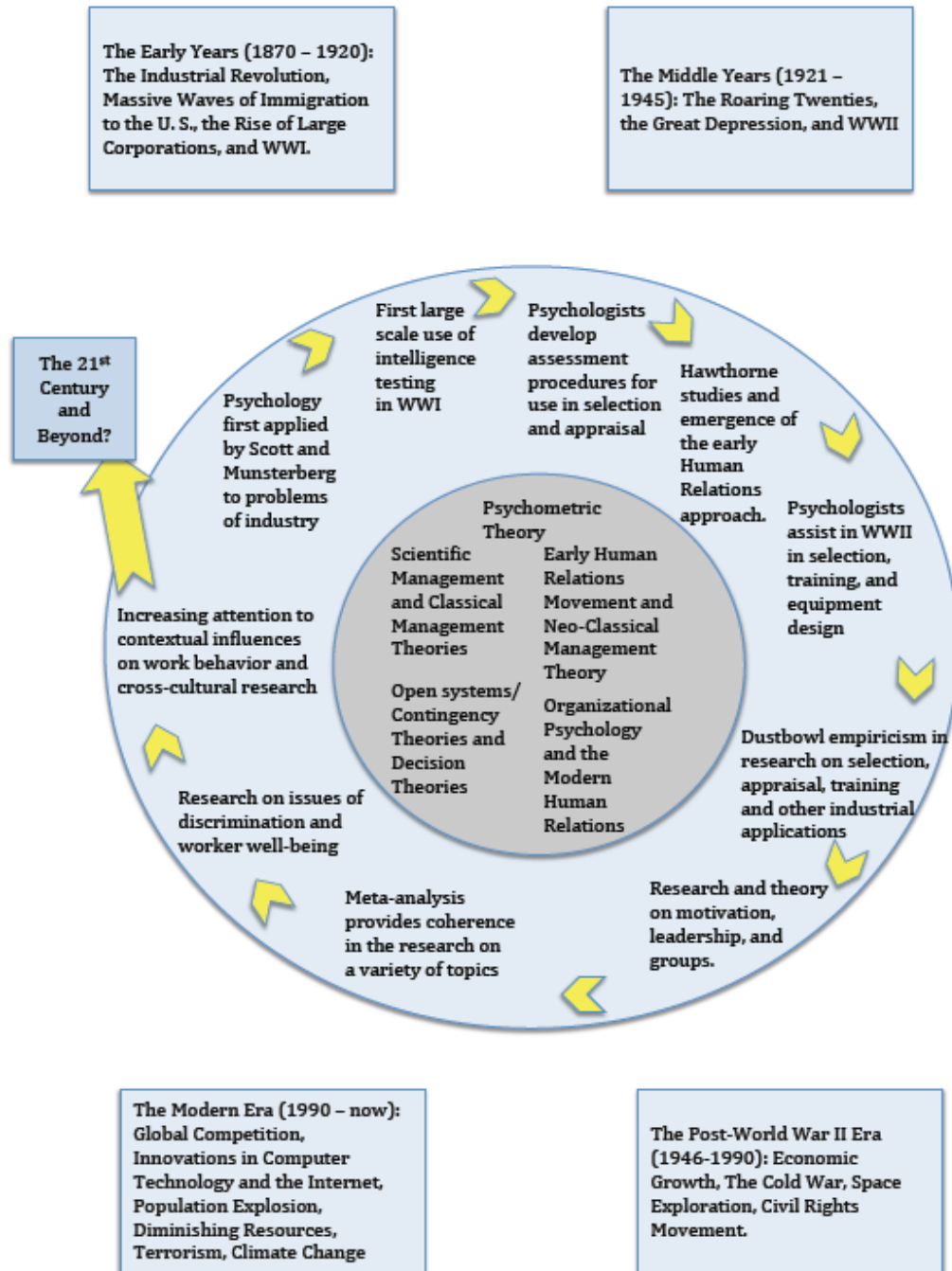


## Introduction

This chapter reviews the development of I/O psychology from the first crude attempts at application in the late 1800s to the sophisticated profession that constitutes modern I/O psychology. Understanding how the field developed requires a consideration of the contexts in which I/O psychologists have conducted their activities at various points in time over the last 150 years. These contexts include the historical and societal events, management theory and practices, and the development of the larger discipline of psychology.

Figure 2.1 summarizes this evolution of I/O psychology in the context of historical and societal events, the development of psychology as a discipline, and thinking about organizations and the management of people in these organizations. The boxes outside the circle anchor four periods (early, middle, post WWII, modern) and the historical and societal events occurring during these years. The chapter begins with the early years from 1870 - 1920 defined by the industrial revolution and the rise of the corporation. This era ends with WWI, a very significant event in the development of I/O psychology. The end of WWI signals the beginning of the middle years. During these years there was the economic boom of the 1920s followed by the economic bust of the Great Depression in the 1930s and still another war, WWII. After the end of WWII came the postwar years in which the U. S., the dominant economic and military power in the world was engaged in a cold war with the Soviet Union and the People's Republic of China. This competition among the great powers spawned space exploration and unprecedented progress in science and technology. Also occurring during this period was the Civil Rights movement, which had a huge impact on I/O psychology. Finally, the end of the cold war and the end of the Soviet Union marked the beginning of the modern period. This period continues to the present time and is characterized by global competition, the development of computer technology and the internet, diminishing resources, and population explosion. Although the great powers are no longer threatening each other with nuclear annihilation, a new threat has emerged in the form of terrorism.

Over these four periods psychology emerged as a major discipline and I/O evolved as a subdiscipline within psychology. The development of I/O is represented by outer edge of the circle and is punctuated by some major contributions of I/O psychologists to meeting the needs associated with historical and societal events occurring at the time. For instance, with the outbreak of WWI psychologists developed the first paper-and-pencil tests of intelligence to allow screening of prospective soldiers. The inner circle summarizes influential theories in psychology and management that were associated with what was happening in the field of I/O and the world at large. This timeline provides a context for the development of I/O psychology, but do not interpret this as a rigid chronology. For instance, the classical theories of management were dominant during the early years and less so today. Yet, this approach to thinking about management of people in organizations did not suddenly end with the middle years. Indeed, classical theory and scientific management still influence thinking about how to manage people in organizations.



\*The dominant theoretical orientations are in the inner circle. Some of the major contributions at each period in history are in the outer circle.

Figure 2.1: The Evolution of Industrial and Organizational Psychology in the Context of Historical Events and Theory

Still another caveat to consider when reviewing this chronology of events

in I/O psychology is its U. S. centric perspective. This admitted bias is because researchers and practitioners from the United States overwhelmingly dominated I/O psychology in the early and middle years. This has changed dramatically over the last 2 - 3 decades. I/O psychology is today a multi-national and cross-cultural discipline. There are active I/O societies on all the continents and the number of articles authored by those outside the U. S. and published in the major I/O journals are increasing at a rapid rate. However, because the focus of this chapter is on the past rather than the future of I/O, the developments occurring in the U. S. are the primary focus. For an excellent and detailed account of the development of I/O psychology in the U. S. and around the world, the reader is referred to [A History of Industrial and Organizational Psychology](#) (Bryan and Vinchur, 2012).

### The Early Years (1880 – 1920)

Industrial and organizational psychology emerged at the time of the transition of the U. S. economy from an agrarian society to an industrial society. These early years were marked by mass production, the rise of the corporation, consumerism, and immigration to the United States to meet the demand for labor. At the same time psychology was emerging as a discipline and some of the early psychologists looked for applications to the rapidly changing workplace. The dominant thinking about managing people in the organization was what McGregor would call Theory X. Classical and scientific management theorists emphasized efficiency and felt that employers could obtain the cooperation of workers by assigning them to specialized tasks, closely supervising their performance of these tasks, and motivating them with financial incentives.

What were the major forces shaping work during the early years?

Industrialization and mass production. The Industrial Revolution began in the late 1700's with technological innovations such as the cotton gin and steam gin ([https://en.wikipedia.org/wiki/Industrial\\_Revolution](https://en.wikipedia.org/wiki/Industrial_Revolution)). It continued through the 1800s and early 20th century with the invention of the telephone, the sewing machine, the automobile, the incandescent light bulb, the diesel engine, the airplane, the Bessemer process and open hearth in steel making, and the spread of the telegraph. Unlike in Europe where railroad systems connected existing cities, the rapidly growing network of railroads was responsible for creating cities in the United States.

Although the invention of new machines was a driving force of the industrial revolution, innovations in the management of people were as important as advances in hard technology. A crucial development in management was the idea that the work that employees perform is best divided into narrow, specialized tasks. This was not “discovered” in the 1700s but is found in one form or another throughout history. What was unique about what happened in the 1700s was that the division of labor principle was refined, systematized, and formalized. One of the earliest applications was by Josiah Wedgwood who revolutionized the manufacture of pottery in the 1700s (McKendrick, 1961). The old methods of pottery making were becoming obsolete in meeting consumer



demand. “The family craftsman stage had already given way to the master potter with his journeymen and apprentices recruited from outside the family, and this in turn was becoming inadequate to deal with the growing complexity of potting production” (McKendrick, 1961, p. 31). Wedgwood introduced one of the first examples of the assembly line. “His designs aimed at a conveyor belt progress through the works: the kiln room succeeded the painting room, the account room the kiln room, and the ware room the account room, so that there was a smooth progression from the ware being painted, to being fired, to being entered into the books, to being stored. Yet each process remained quite separate” (McKendrick, 1961, p. 32). Rather performing all the tasks that constituted this assembly line, each worker specialized in one specific task. “His workmen were not allowed to wander at will from one task to another as the workmen did in the pre-Wedgwood potteries. They were trained to one particular task and they had to stick to it” (McKendrick, p. 32). In addition to division of labor, Wedgwood also innovated the use of piece rate incentive systems in which workers were paid by the unit of production, the organization of supervision in the hierarchical layers, and the use of rules in the discipline of workers. The concepts of division of labor and specialization of labor had become well known enough that Adam Smith (1776) in Wealth of Nations, his famous treatise on economics, attributed much of the prosperity achieved in the civilized nations to the application of these principles by manufacturers.

The division of labor, the assembly line, and other management innovations introduced by Wedgwood and others were notable but were not widespread. It was not until the late 1800s and early 1900s that these techniques emerged as dominant methods of organizing and managing work. The most publicized and famous of the applications of the assembly line was in 1913 when Henry Ford introduced a moving assembly line procedure at his Highland Park, New Jersey plant in the U. S. (see photo below; see also <http://www.pbs.org/wgbh/aso/databank/entries/dt13as.html>).



Assembly line in Ford plant

Numerous books and articles have attributed to the assembly line the increase in productivity and decreases in costs that occurred in manufacturing during the first few decades of the 1900s. Reductions in the cost of what was produced allowed the purchase of all sorts of goods by the working and lower socioeconomic classes and fueled an economic boom. A bundle of innovative management practices that included incentives,



rules, and supervisory approaches accompanied the introduction of the assembly line at the Ford plants (Wilson & Mckinlay, 2010; Williams, Haslam, Williams, Adcroft, & Johal, 1993). Part of the bundle of changes introduced by Ford was an increase in wages for workers who worked on his lines. In 1914 he decided to double the wages of his assembly line workers to \$5.00 a day, a remarkable increase in wages for that time. He also reduced the workday to eight hours a day from the 10 - 12-hour day that was more typical in the early 1900s. The increased wages and reduced working hours attracted huge numbers of workers to his plants and along with the assembly line procedures allowed the mass production of vehicles. The increased wages also created customers for these automobiles. These innovations were criticized severely by the business community. After seeing the positive impact on productivity, other corporations were soon imitating Ford's increase in wages and reduced working hours. (Open this link to read more: <http://www.thedailybeast.com/articles/2014/01/06/henry-ford-understood-that-raising-wages-would-bring-him-more-profit.html>).

Massive waves of immigration. The factories that were being built in the booming cities of the U. S. needed workers. The demand for labor led to a huge wave of immigration of Europeans to the U. S. (27.5 million immigrants between 1865 and 1918, 89% from Europe) and a movement of farmworkers within the U. S. to the cities to work in the mills. Throughout the world, but especially in the United States, technological innovation transformed what had been a predominately rural and agricultural existence into societies dominated by large cities and manufacturing.

### Major events: Huge wave of immigration from Europe to the U. S.



Rise of the corporation. As important as the technological innovation and the dominance of manufacturing and city life was the rise of the large corporation. Prior to the industrial revolution, the dominant work organization was a small entrepreneurial firm in which the owners were the managers. To deal more efficiently with the larger scale of operation that characterized industry in the mid to late 1800s, a new organizational entity emerged in which the owners were shareholders with little contact with the firm and managers were hired to run the firm as agents of the shareholders. This new form of organization is called the corporation. The corporation as a legal entity was controversial when it first

emerged 150 years ago and remains controversial. For portions of a recent documentary on these controversies see:

<https://www.youtube.com/watch?v=Pin8fbdGV9Y>

<https://www.youtube.com/watch?v=8SuUzmqBewg>

<https://www.youtube.com/watch?v=wkygXc9IM5U>

A highly significant event occurring in the U. S. in 1886 was the Santa Clara County V. Southern Pacific Railroad Supreme Court decision that gave corporations the same rights and protections given to real people under the U. S. Constitution (<http://www.truth-out.org/opinion/item/375:unequal-protection-the-deciding-moment>). This included the right of management to use the corporation's wealth to influence the government. It is this decision that set the precedent for the U. S. Supreme Court's recent decision to declare attempts to reform campaign finance as a violation of the constitutional right of free speech. During the latter part of the 1800s, corporations were subjected to very little oversight by government and could take ruthless actions to eliminate their competition and create monopolies. They could also crush attempts to form unions by firing, harassing, or even physically threatening workers who tried to organize. The period in the United States that followed the end of the Civil War in 1865 and continued until the early 1900s has been called the era of the "robber barons" such as Andrew Carnegie, John D. Rockefeller, and Jay Gould. These men amassed enormous wealth by destroying their competitors, subjugating their employees, and ignoring public interests.



Rise of consumerism. During the late 1800s and early 1900s, American industry was enjoying the combined benefits of a host of positive business conditions. These included technological innovations such as mass production, seemingly unlimited natural resources, cheap labor immigrating from Europe, strong government support, expanding markets, and a social climate that lionized material success: All the ingredients for rapid growth and prosperity were in place. The great American experiment was working! Evolving business organizations, like the country itself, saw themselves as virtually invulnerable to outside forces. If a firm, or an individual for that matter, did not succeed, only it (or he) was to blame. Initiative and growth could overcome virtually any obstacle that might arise. With natural resources and cheap labor available and virtually no restrictions on corporations, the U.S. became the economic, industrial, and agricultural

leader of the world. The rise of the large urban area and manufacturing brought pollution, poverty, crime, and disease and large economic inequalities, but also dramatically improved the economic status of the industrial worker. The average annual income of nonfarm worker improved dramatically with the average annual income rising by 75% from 1865 to 1900, and by 33% from 1901 to 1918 (U.S. Bureau of the Census, Historical Statistics of the United States (1976) series D726 and D736 pp. 164–5). The availability of cheaper goods coupled with the rising income of workers, led to consumerism. Consumerism is often defined as an economic and social phenomenon in which people are driven to purchase more than they need. Consumerism has had critics (e.g., the sociologist Thorstein Veblen (1857/1899) coined the term conspicuous consumption to refer to irrational buying behavior of people seeking status by means of possessions). Despite the critics, there is no doubt that consumerism fueled the economic growth and increasing prosperity of the late 1800s and early 1900s. Supporters of consumerism argued that the creative waste of money on goods that were luxuries fuels economic progress and raises the living standard of all socioeconomic classes. The practice of purchasing on installment plans became a popular form of buying. To create the demand that would lead people to go beyond their means in making purchases, advertising and marketing emerged as professions. Advertising changed from merely informing consumers of the existence of various products, to creating the need for these products. Psychology became the source of ideas for advertising, and early psychologists such as Walter Dill Scott ([http://faculty.frostburg.edu/mbradley/psyvography/bioscopes\\_walterscott.html](http://faculty.frostburg.edu/mbradley/psyvography/bioscopes_walterscott.html)) and John B. Watson (<http://advercloud.com/Movers-shakers/John-B-Watson.php>) were pioneers in the study of consumer behavior.

What were the dominant theories of how to organize and manage work?

As a consequence of what was occurring in the 1800s and early 1900s, a variety of disciplines began to give attention to what constitutes the most effective ways of managing work. To successfully compete in the early years required that the management of organizations were able meet the demands for producing goods in the most efficient way possible. Classical Organizational Theory (also called Administrative theory) and Scientific Management emerged as the two dominant theories. There were differences between the two types of theory. For instance, the Classical Organizational Theories focused more how to structure reporting relationships and the entire organization, whereas Scientific Management was focused more on how to organize tasks and motivate the employees performing these tasks. Despite these differences, the two approaches were quite similar. They both were closed systems approaches that focused inward oriented and ignored the world outside the organization or the context in which workers performed their tasks. Both approaches tended to state universal rules for managing work and organizations that were believed to apply in all situations. Both stressed the management of the individual worker and mostly ignored the fact that workers belonged to groups. Both emphasized monetary incentives and paid little or no attention to the other factors that might motivate a worker. Organizations and the people that belonged to these organizations were assumed to operate in a rational manner. The assumption was that if management structured the situation so that workers benefitted from working hard to achieve organizational goals, these workers act rationally and do what management

wants them to do. Perhaps the most important common feature was the belief that productivity and efficiency were achieved with a strict hierarchy of authority in which managers had the right to give orders and subordinates were obligated to obey.

Classical Organizational Theory and Scientific Management reflected what some corporate leaders were already doing to increase efficiency and productivity. Thinking about to organize and manage work had been around for centuries (e.g., read Exodus 18: 17 – 27 in the Bible to see classic organizational principles at work). After all, work organizations have existed throughout recorded history, and it is not surprising that advice would exist on how to create and manage these organizations. The advice on how to management organizations, however, was not seriously investigated until the nineteenth and twentieth centuries. The classical and scientific management approaches that emerged during 1870 – 1920 were explicit and systematized systems of thought that delved more deeply into the underlying dynamics of organizations and work than any previous theorizing. These first formal theories of organization were presented by both practitioners, such as chief executive officers, and scholars from a variety of academic disciplines, including psychologists, sociologists, economists, and political scientists. Three theories that are most representative of the Classical and Scientific Management approaches were Henri Fayol's Administrative Management Theory, Frederick Taylor's Scientific Management, and Max Weber's Ideal Bureaucracy.

Fayol's administrative management theory. The existing knowledge about work organizations derives from a variety of sources, both scientific and experiential. First, came the attempts by practicing managers to capture their insights in the form of universal management principles. Probably the most influential of these was a book first published in 1916 by a French manager, Henri Fayol, Administration Industrielle et Generate, in which he spelled out 14 principles that he saw as key to successful management (Fayol, 1936). Included were such basic notions as

- \*\* Division of labor: every employee performs a specialized set of activities.
- \*\* Clear chain of command: require that all communications flow through the hierarchy so that no subordinate bypasses his or her boss but goes through that boss
- \*\* Subordination of individual interests to those of the organization.
- \*\* Unity of command: each employee should report to one and only one supervisor.
- \*\* Parity of authority and responsibility: every employee is given just enough authority to carry out his or her responsibilities..no more, no less.
- \*\* Centralization: those higher in the organizational hierarchy call the shots and have the largest amount of authority.

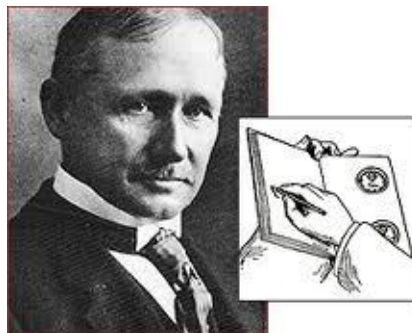
Fayol's book was followed by a number of other books that carried much the same message. This philosophy of management became known as classical organization (or administrative or management) theory (Bedeian, 1980; Dessler, 1980).



Henri Fayol

Collectively these works formed the basis of academic training in management from its beginnings in the 1920s through the 1950s. The classical philosophy focused on the formal structure of organizations: clear and efficient division of labor, lines of authority, and communication. The idea was to divide work up into clearly defined jobs, put them together in the most efficient way, and make sure workers performed according to plan by imposing a military-like system of authority over them. People were seen as mere instruments of production and productivity the only legitimate goal. Ensuring that the organization was productive required that management provide clear direction and tight control.

Scientific management. As early management theorists formed these ideas, classical theory received an important boost from a most unlikely source: a mechanical engineer named Frederick Taylor who sought to extend engineering principles to the design and management of work (Taylor, 1911). His approach was to determine through precise measurement ("time and motion studies") the most efficient way to carry out work operations, to standardize them through clearly specified procedures, and to enforce them through the exercise of explicit management functions, i.e., managers were there to issue orders and workers were to follow those orders. Scientific management, as it came to be called, provided concrete techniques for implementing the classical philosophy. Needless to say, managers came to love it more than did the workers, many of whom saw scientific management as just another attempt by management to exploit them, despised it (Gies, 1991).



Frederick Taylor

Value judgments aside, Taylor's approach was anything but scientific except in the narrow sense of measuring things and using data in place of opinion. True science, as discussed in the next chapter, is much more than that: its aim is to understand natural events. "Scientific management" was concerned with putting into practice a specific theory of management that its proponents accepted as valid. Like classical theory, it had nothing whatsoever to do with a search for knowledge, and in fact represented the antithesis of scientific inquiry.

Taylor's scientific management was founded upon four premises (Dessler, 1980):

1. Finding the "one best way" to perform the job. This typically meant simplifying the job so that employees could more easily and quickly accomplish their tasks. Time and motion studies were crucial to determining the most efficient way of performing the tasks in the job.
2. Systematic personnel selection and placement to match the best worker to each job. Well-developed selection and training programs that consider workers' strengths and limitations were emphasized.
3. Strict division of labor between management and workers. Managers were supposed to manage and plan while the workers accomplished the work; boundaries between labor and management were rigidly guarded.
4. Monetary incentives to attract and motivate workers to perform optimally. Systematic selection and simplification of jobs served as only a baseline for efficiency. The profit motive provided the balance.

Unlike the typical, despotic management practices of the nineteenth century, Taylor's ideas were grounded in an ethic of worker-management cooperation and increased worker benefits. Even if his motives were irreproachable, his assumptions about human motivation and attitudes were not. Taylor assumed that if workers were provided with a decent job and wages linked to productivity, they would strive for peak performance. As the researchers later discovered, however, this simplistic notion was grossly inaccurate. Management could not increase productivity merely by lining workers' pockets with money. Taylor's work inspired numerous scientific management practitioners. Among the most notable of these were Frank and Lillian Gilbreath who pioneered the use of time and motion analysis and the use of motion pictures (for a fascinating silent movie showing the Gilbreaths and their early time and motion studies, [https://en.wikipedia.org/wiki/Time\\_and\\_motion\\_study](https://en.wikipedia.org/wiki/Time_and_motion_study)). The book *Cheaper by the Dozen* written by their son, Frank Gilbreath Jr., is a hilarious account of daily life with Frank and Lillian and their 12 children.

A video showing the early applications of scientific management to the assembly line is at link below. Go to this link now and view the video:

<http://www.youtube.com/watch?v=8PdmNbqtDdI>





Lillian and Frank Gilbreth: "There is no waste in the world that equals the waste from needless, ill-directed and ineffective motions" (Frank Gilbreth)

Weber's ideal bureaucracy. Max Weber (1946) was a noted German sociologist whose ideas, though consistent with the other classical theories and published about the same time, developed independently. Because they were published in German and represented a more academic than practical orientation, Weber's notions had little impact on the management literature until they were translated into English after World War II. Undoubtedly the strained relations between the U.S. and Germany through two world wars had something to do with this delay, a rather vivid illustration of how societal events have influenced both the theory and practice of management.

The essence of Weber's position is that the most defensible way to design and manage an organization is through a rational-legal authority system. The key elements of a "bureaucratic ideal" include

1. Division of labor,
2. Clear specification of roles,
3. A hierarchical (military-like) authority structure,
4. Explicit rules and regulations, and
5. Assignment of people to positions based on merit rather than social position, charisma, nepotism, or political clout (the chief ways in which people landed good jobs at the time).



Max Weber in 1894

Though very similar to the prescriptions set forth by Fayol and Taylor, Weber's views were based on scholarly philosophical argument and historical analysis rather than sheer

practical experience (Weber, 1946). Thus, when social science became embroiled in issues of organization and management, Weber's arguments gave scholarly credibility to the classical philosophy.

Weber saw in the bureaucratic ideal advantages that alternative organizing schemes lacked, such as fairness and efficiency. It is ironic that these are the very criteria for which modern bureaucracies are most vigorously criticized. To most of us, the word "bureaucracy" has come to mean red tape, waste, and mediocrity, the direct opposite of the efficiency and fairness Weber had in mind. Thus, it is important to distinguish the concept, as envisioned by Weber, from the way the concept has often been implemented. Perrow (1986) reminds us that despite its imperfections, and the prediction by its midcentury critics that its days were numbered (Bennis, 1966), bureaucracy has not only survived, it has outlived all the competition. It stands today as the dominant form in both capitalistic and socialistic industrialized societies.

### The emergence of psychology as a separate discipline

As industrialization, the corporation, and classical theories of management were emerging, Psychology was evolving as a separate intellectual discipline. For centuries, philosophers and other scholars have argued over the nature of mind and how it functions—the phenomena of mental life. But the idea of using scientific methods to resolve such issues was what distinguished modern psychology. In 1879 Wilhelm Wundt, a professor at the University of Leipzig in Germany, opened the first laboratory devoted exclusively to the study of psychology. Experiments were carried out under carefully controlled conditions to answer basic questions about the human mind. Because most of the important first-generation psychologists studied under Wundt, the new discipline began as a basic science concerned mainly with laws of conscious experience.



Wilhelm Wundt in his Leipzig lab with his students and colleagues.

At about the same time that Wundt was trying to describe the general laws that govern mental life, a British scholar and cousin of Charles Darwin, Sir Francis Galton, was studying how people come to differ from one another mentally. He devised the mental test as a means of indexing individual differences in mental ability. Although Galton's attempts at measuring mental ability were unsuccessful and misguided, his work spawned a tradition in psychology that developed largely in parallel with Wundt's mental science



(Hothersall, 1984). It has often been called the "mental testing movement."

Testing for individual differences and doing experiments to discover general mental principles have remained fairly distinct approaches in psychology despite periodic efforts to draw them together (Cronbach, 1957, 1975). Wundt's mental science approach dominated early psychology in the United States, but the practical possibilities of testing are what captured industry's interest. Hence, the individual differences approach became dominant in early industrial psychology and remained so for the next several decades.

The early years of psychology were characterized by debates among grand, theoretical perspectives. Early on the emphasis was on describing the general laws that govern conscious experience. Using introspection as a research tool, psychologists such as Wundt attempted to analyze and describe the contents of conscious experience (e.g., sensations, images, feelings) similar to the way a chemist might analyze the elements of matter. This paradigm was often referred to as structuralism because of its focus on the structure of mental content.

During this period, Sigmund Freud's theories on the nature and treatment of mental disorders (and the role of unconscious events in mind and behavior) were also beginning to attract a great deal of attention, eventually helping to establish the health-care branch of psychology (Hothersall, 1984).

### Sigmund Freud

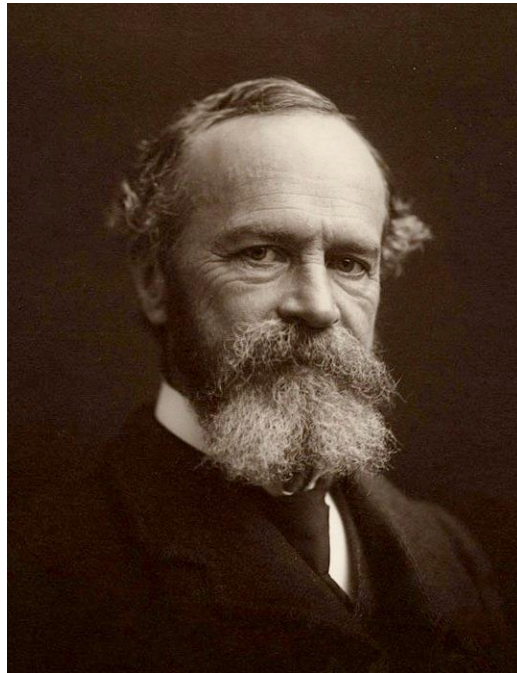
Freud's work on the unconscious, shifted attention to the more dynamic functional properties of mind. From the late 1920s until the 1940s, therefore, the emphasis was on the mental and biological underpinnings of functions such as motivation, emotion, learning, and perception. The primary concern of functionalists was how humans and other living organisms adjust to their environment.



Sigmund Freud

This school of thought constituted America's first unique paradigm and became known as American functionalism (Hothersall, 1984). It was a much less restrictive school of

thought than structuralism and much more appreciative of applications of psychology to practical programs. Functionalism in psychology and pragmatism in philosophy provided a context in which individual differences approach and applied psychology to develop within it. William James was a Harvard professor who was perhaps America's most influential psychologist in the early years. He was among the founders of American functionalism and the leading proponent of philosophical pragmatism. He also recruited to the faculty at Harvard a German psychologist by the name of Hugo Munsterberg who is known as the father of I/O psychology.



William James promotes pragmatism:

"Truth in our ideas means their power to work" (From *Prmatism*, 1907)

Behaviorism was an offshoot of functionalism and developed as a distinct area of psychology under the leadership first of John B. Watson, and later, B.F. Skinner (Hothersall, 1984). Behaviorism held that both the content and functions of mind are unsuitable subjects for scientific study because neither is open to public view. Because science only advances through objective observation, psychologists should limit their research to behaviors (responses) that organisms exhibit and the environmental conditions (stimuli) that control them. In its most radical form, behaviorism denied the very existence of mind and maintained that all behavior is reducible to simple stimulus-response (S-R) laws.



John Watson: "Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in and I'll guarantee to take any one at random and train him to become any type of specialist I might select – doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors" (Watson, J. B., 1930. *Behaviorism* (Revised edition). Chicago: University of Chicago Press, p. 89).

### The early applications of psychology to work

In these early years, psychology was largely confined to the realm of academic research and application was held in disdain. Many psychologists felt that attempt to develop a field of applied psychology would harm the development of psychology as a science. Nevertheless, the pressures to use the findings and methods of this new discipline to assist in the management of work proved irresistible. The potential uses of psychology were obvious, and in the 1800s and psychologists rose to the challenge by applying the methods, theories, and body of knowledge to practical problems of industry. The work on individual differences, behaviorism, and functional psychology nicely complemented the principles of Scientific Management. Job analysis techniques were developed to help in studying the work and identifying the best ways of doing the job. Finding the right person to do the work was facilitated as psychologists generated a variety of tests used to assess and select among workers. Training techniques were developed to make sure that workers learned the best ways of doing the work. The schedules of reinforcement discussed by Watson and B. F. Skinner were compatible with what Taylor said about paying people by the piece of work produced. Above all, scientific management proposed that research should guide how people are managed, and psychology provided the research tools for evaluating the effectiveness of alternative approaches.

The early years in which psychology was applied to problems of management tended to reflect the emphasis dominant at the time on productivity and efficiency. Anything one could do to improve human reliability, interchangeability of employees, and increase work output was believed to have a profound impact on profitability. The principles of work standardization and simplification coupled with tight management control made sense in the societal and historical context of this period. And the prospect of using paper-and-pencil testing to weed out the most incompetent or unreliable workers prior to hiring them was especially attractive. Classical organization theory, scientific management, and applied psychology provided tools for lowering unit production costs

just as surely as new machinery did. Applied psychology also provided tools for identifying how to best persuade consumers to buy one's product or service. Interestingly, John Watson not only established the behaviorism school of thought in psychology but later in his career also pioneered applications of psychology to marketing and advertising.

The “fathers” of I/O psychology. The applications of psychology to industrial problems began in earnest in the early 1900s with the work of two students of Wundt, Hugo Munsterberg and Walter Dill Scott. Both wrote important books on industrial applications of psychology. Munsterberg (1913) was concerned primarily with industrial efficiency and Scott (1908) with advertising. Between them they touched on many of the topics that have occupied I/O psychologists ever since.



Hugo Munsterberg writes the first I/O textbook in 1913: “For the sciences of the mind the time has come when theory and practice must support each other. An exceedingly large mass of facts has been gathered, the methods have become refined and differentiated, and however much may still be under discussion, the ground common to all is ample enough to build upon.”



Walter Dill Scott publishes *Increasing Human Efficiency in Business*- A contribution to the psychology of business (1911).

The first standardized mental ability test. Alfred Binet was a French psychologist who

was another pioneer in applying psychology to practical problems ([http://en.wikipedia.org/wiki/Alfred\\_Binet](http://en.wikipedia.org/wiki/Alfred_Binet)). He is best known for introducing the basic procedures associated with intelligence testing and gave us the concept of IQ (intelligence quotient). Binet, who is shown testing a student, devised an objective method of assessing the intelligence of elementary school students so that teachers could identify low intelligence students and provide them with special education. Previously, this decision was based on the subjective and often biased judgments of teachers. For instance, a teacher might have decided that some students from a lower socioeconomic class or a minority ethnic group was incapable of learning and would assign them to special education. Binet constructed an objective, standardized test that he believed eliminated these biases. His test served as the prototype for all future mental testing.



Alfred Binet with student

World War I provided the setting for the first large scale application of psychology. The United States and the other countries on the both sides were faced with the daunting task of processing millions of people to serve as soldiers. U. S. President Woodrow Wilson called upon psychologists to help in this endeavor and in May 1917 his administration formed the Psychological Examination of Recruits Committee consisting of the top people in psychological research on individual differences at the time (Dahlstrom, 1985).

Within two months they had constructed the Army Alpha test, which was a written paper-and-pencil test, intended for recruits who could read and write. Another test, the Army Beta, was a nonverbal test for illiterate and non-English speaking recruits. By the end of WWI over two million army recruits had taken the Army Alpha and Beta (McGuire, 1994). Although the Army Alpha and Beta were not subjected to the research scrutiny that characterizes modern testing, these were the first practical tests that educators could administer to large groups of people. From this point on, intelligence testing became a focus of attention of popular culture. An unfortunate consequence of intelligence testing was that it provided the data on racial differences in intelligence that the eugenics movement used to encourage discrimination against ethnic minorities and immigrants (Gould, 1981). This led to controversy over whether intelligence testing is racially biased that continues to this day (Fancher, 1985).

### Major events: World War I

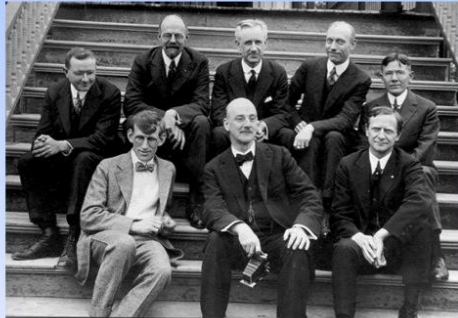


Psychometric theory. At the same time that psychologists were developing measures of intelligence that management could use in making practical hiring decisions, other psychologists and statisticians were working on the theoretical foundations for these applications. The conceptual framework that emerged during this early period was Classical Test Theory (CTT). CTT would dominate thinking about the use of individual difference measures for decades to come and continues as an influential framework in I/O psychology. CTT presumes that for every psychological construct there is a true score. Psychological measures reflect not only the true score but also some error. These measures are fallible to varying degrees and psychometric theory provides the conceptual foundation for practical means of assessing the fallibility of psychological measures. Reliability and validity, the two primary bases for evaluating psychological measures, were the products of classical test theory.

Psychometric theory was made possible by the emergence of the discipline of statistics. The historical roots of the field of statistics are traceable to as far back as the 1600s, but it was during the 1800s and the early 1900s that the discipline emerged as the quantitative foundation for a variety of social sciences including sociology and psychology. Earlier there was a discussion of Gauss and his notion of the normal distribution. He also introduced such concepts as standard deviation, correlation, and regression, statistical concepts and procedures that are discussed throughout this text. In the late 1800s and early 1900s, Karl Pearson, Ronald Fisher, and Charles Spearman pioneered the statistical procedures that continue to dominate, for better or worse, how I/O psychology uses statistics. The author of this text says “for better or worse” to acknowledge the serious doubts raised about how statistics are used to determine whether relationships among variables deserve attention (Krueger, 2001).



The Psychological Examination of Recruits committee formed in 1917 constructs the Army Alpha Exam.



\*Left to right, front row, Edgar Doll, Henry Goddard, and Thomas Haines. Left to right, rear row: Frederic Wells, Guy Whipple, Robert Yerkes, Walter Bingham, and Lewis Terman.

#### The Middle Years (1920 – 1945)

The classical theories of management and scientific management, along with the practical tools developed by psychologists, succeeded in helping managers control labor costs. Moreover, the emphasis on hierarchical structure and strict obedience to the boss were effective in managing the masses of workers and large scale manufacturing so dominant during the early years. Labor unions were emerging during the early years but they were weak and seemed manageable. Where necessary, corporate tycoons could hire private armies to prevent unions from forming, and if that failed, management could bring union members into line by threatening to dismiss them. If a strike still occurred, management could simply replace the striking workers. Were some do-gooding politician or newspaper editor to take issue with these methods, as some did, corporate leaders could handle that as well by the proper application of money or pressure in the right places—notably to the politician's sources of funding or the newspaper's ownership. In short, there was little apparent reason to worry about societal change, and the only real issue in managing people was ensuring that their humanness interfered as little as possible with their output.

In the years between the end of World War I and the end of the World War II, there were huge changes that forced managers to reconsider how they dealt with people. The included the "roaring twenties" and the economic crash of the great depression years. During this period there were dramatic increases in the educational levels of American workers, the rise of populism, socialism, and unionism and World War II. I/O psychology continued to grow during these years building on the successes of the early years but rather than focusing solely on the traditional concerns of I/O during the early years, another way of thinking about the management of workers emerged. McGregor (1960)

would call this new way of thinking “Theory Y” and contrasted it with Theory X, the way of thinking reflected in the Classical and Scientific Management approaches.

### Economic boom and bust

Few periods in American history have influenced government structure, size, and economy more than the “Roaring Twenties” and the “Great Depression”. The optimism and greed of the immediate post WWI years bear a striking resemblance to the recent economic booms in the 1990s and early 2000s as does the economic collapse that occurred in the 1930s. The events of this period also shaped thinking about management of people and the field of I/O psychology.

The roaring twenties. Cities in the 1920s were profoundly impacted by the preceding war. European immigration had almost come to a standstill during the fighting. New immigration restrictions in 1921 and 1924 left cities with insufficient European immigrants to man factories. Southern blacks, looking for a better life, migrated to urban areas and exchanged sharecropping for factory jobs. Widespread economic prosperity ensued as cities eclipsed small towns and rural areas in overall population. Mass-produced technology products were within the reach of the majority of Americans, including returning WWI soldiers. Every home was a market for electrical appliances of all kinds—refrigerators—washing machines—vacuum cleaners, etc. Advertising convinced Americans they needed products, some of which they had never heard of before. Electricity production soared throughout the 1920s' decade as more of the United States joined the electric grid, and most coal powered industries switched to electricity. Assembly lines produced Henry Ford's automobiles at prices most Americans could afford. Mobile Americans enjoyed freedom as they took to thousands of miles of new, paved roads. Charles Lindbergh traveled the highway in the sky in 1927, becoming the first person to fly solo across the Atlantic.

Actions in the 1920s led to the depression in the 1930s, which led to the New Deal in 1933 through 1938. The economic causes of the Great Depression originated in the events surrounding World War I and its aftermath. World War I exhausted people. Grief, loss, and hard work made the people ready for a change. The 1920s brought this in a number of ways. Consumerism reached its height in this time period. The “flapper” epitomized consumerism with her makeup, ready made clothes, and cigarettes. Entertainment soared and morals began to slide. All of these factors covered the inflation that was happening in prices. Worker's salaries increased but did not match the rate of the price increases and farmers were forced further into debt. National economics also suffered with income taxes being the lowest for those who were the wealthiest. In 1924, immigration became limited, reducing the number of workers in the economy. When the stock market crashed in 1929 all the economy's weaknesses became clear. This was not, however, the start of the Great Depression but just a signal of its onset.

Also rising during the 1920s and 30s was the educational level of the worker. As noted in the graph below, there was a steady increase in the proportion of 5 - 19-year-old population enrolled in school from 1850 to the 1990s. Especially dramatic was the steep

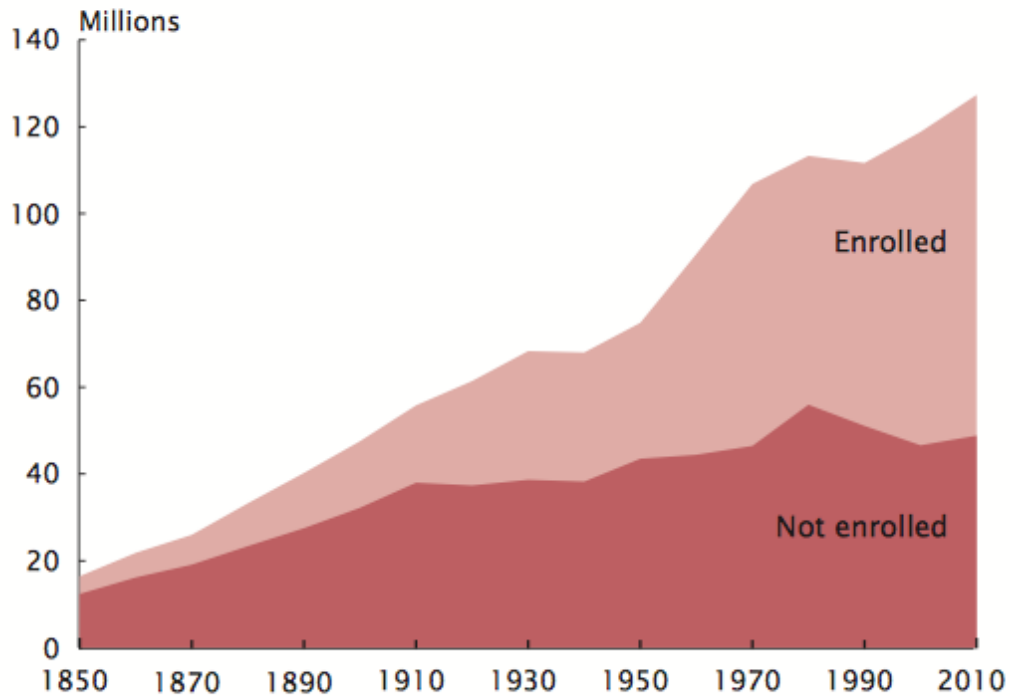


rise in education that occurred in the 1920s and 1930s. Increased education raises the expectations of people for the type of jobs they will hold and how management will treat them. An educated workforce is also less submissive to autocratic management and more likely to question such practices.

The Great Depression. The other event that brought attention to the need to take into account human rights and attitudes was the Great Depression. The dramatic worldwide economic collapse of the 1930s most drastically affected national moral by eliminating jobs. In 1929 only three percent of the workforce was unemployed, by 1933 this had reached twenty-five percent. Since a quarter of the nation was out of work, people stopped spending money. All durable goods such as automobiles, housing and appliances, didn't sell and forced people who worked in those industries out of their jobs. People with jobs had to accept pay cuts and many felt lucky just to have a job. Banks lent out more money than they had and many people lost their savings. Family life also changed drastically, with marriage and birth rates falling rapidly while divorce rates grew. All of this kept the economy in a shambles with no hope of relief. Then came the New Deal.

After taking office in 1933, President Franklin Delano Roosevelt sought to bring change to the nation by increasing the role and power of the government in ways that the previous President, Herbert Hoover, hadn't. Hoover had been reluctant to use welfare programs to help those in need and did not establish many public works projects. Roosevelt, however, used both of these programs generously. At this time the US also abandoned the gold standard and put more money into circulation, meaning there was more cash circulating than there was gold bullion. Trust in banks was one of the first things Roosevelt sought to restore. This happened with the "bank holiday" and the Emergency Banking Act. The Federal Deposit Insurance Corporation also helped to restore trust by ensuring the safety of people's money in case the bank failed. The Public Works Administration appeared at this time as well. Dams, bridges and other public buildings were built, creating more jobs for unemployed people. Work camps were also set up to help people find jobs. The New Deal was influential in that it helped alleviate the misery that overtook the people but it also expanded the role of government in the United States, Great Britain, and other nations. Assistance provided by charitable organizations such as churches to help the unemployed, homeless, and displaced now became government programs.

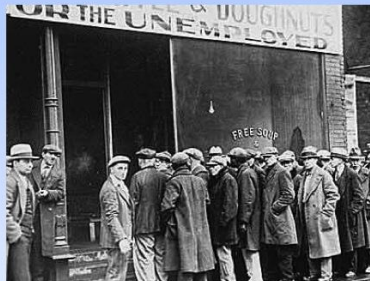
## U.S. Population Under 30 by Enrollment Status: 1850 to 2010



Source: U.S. Census Bureau, 2010 American Community Survey and Census 2000 and previous years. For information on sampling and nonsampling error, see [www.census.gov/acs/www/Downloads/data\\_documentation/Accuracy/ACS\\_Accuracy\\_of\\_Data\\_2011.pdf](http://www.census.gov/acs/www/Downloads/data_documentation/Accuracy/ACS_Accuracy_of_Data_2011.pdf).

Figure 2.2: 5 to 19-year-olds in the U. S.  
Enrolled in School, 1850 to 1991.

Major events: The great  
depression (1929 – 1941)



The financial crash of 1929 followed by the depression of the 1930s shattered both of these myths together with the national spirit of rugged individualism and self-confidence. The suspicion arose and spread that perhaps unfettered capitalism was not the answer to

all organizational and social problems. Clearly there were forces at work in society powerful enough to bring down even the biggest and strongest. U. S. society began to recognize that neither individuals nor organizations were the complete masters of their fate. The Great Depression of the 1930s was a worldwide economic phenomenon that led to a host of societal changes. For example, it undoubtedly contributed to conditions in Germany that culminated in the next epoch-making event, World War II. Further, it reinforced the growing recognition that for all its success, the U. S. was not immune from foreign influence. This, unfortunately, has remained a difficult lesson for Americans to learn in the twenty-first century.

For present purposes, it is sufficient to mention some direct consequences of the depression for corporate America in the 1930s. First, government influence became much stronger, becoming a force that corporate leaders had to reckon with in business decisions affecting union relations, personnel management, and consumers. President Franklin D. Roosevelt's sweeping reform programs (the National Recovery Act, his reshaping of the Supreme Court, the New Deal, etc.) put serious restrictions on the free enterprise system and created a favorable climate for organized labor. During the 1930s union membership grew to nearly 30% of the nonagricultural workforce (Kochan & Barocci, 1985). No longer could management dominate labor-management relations as it had in the past.

Second, public support for these government programs signaled a dramatic shift in society's attitudes. For the first time the public could identify with the plight of the downtrodden worker. Because misfortune had touched everyone, it was no longer limited to what society perceived as the ignorant, the lazy, and the largely "foreign element" that dominated the working class (who in society's view probably deserved mistreatment). Corporate greed and abuses became an alternative explanation, and sentiment shifted from supreme confidence in big business to distrust and a plea for government intervention.

Finally, organizations began to feel pressure from a variety of sources to shoulder more responsibility for employee welfare. Massive unemployment did nothing to hurt their favorable labor market, i.e., labor became even cheaper and the desperate economic times made people even more willing to submit to authority. Nevertheless, there were mounting pressures from government and changing social norms on the business community to address the rights and welfare of their employees. In addition to social and government pressures, the research and theory of anthropologists, sociologists, and psychologists led to fundamental changes in the way managers thought about work.

The rise of unionism, populism, and socialism. Other sources of the increased concern for worker rights and welfare were the three "isms".... populism, unionism, and socialism. Populism can come in the form of both right-wing and left-wing movements and reflects a rejection of elitism (e.g., the "Hollywood elite" by the right and the "1%" and "corporate elite" by the left) and an assertion of the rights of the ordinary working person (<http://gildedage.lib.niu.edu/populism>). Populism had begun prior to the World War I in the form of the progressive movement and culminated in among other things the winning of the vote for women in the United States in 1920. With the greed and corruption of the

gilded age during the late 1800s social critics brought attention to the abuses of large corporations and were instrumental in mustering public opinion in support of greater government oversight of corporations. Theodore Roosevelt was the first U. S. president to act as a champion for the Progressive cause. In the Square Deal, the name of his domestic plan, he advocated Federal regulations and laws to prevent the unfair business practices of the large monopolies.

Also responsible for an increased concern with worker rights and welfare was the growing strength of organized labor. Early examples of labor-management clashes in the U. S. were The Great Railroad Strike of 1877 organized by the Knights of Labor, the 1892 strike at Carnegie steel works in Homestead, Pennsylvania led by the Amalgamated Association of Iron, Steel and Tin Workers, and the strikes by Pullman Palace Car Company employees organized by the American Railway Union. Socialism and powerful unions such as the Industrial Workers of the World (IWW) or “Wobblies”

([https://en.wikipedia.org/wiki/Industrial\\_Workers\\_of\\_the\\_World](https://en.wikipedia.org/wiki/Industrial_Workers_of_the_World)) raised the fears of corporate leaders that unions would force them to negotiate wages, work conditions, working hours, safety, and other issues with their employees. Not only was this seen as a threat to their profits but more importantly as a threat to their power.



Even more threatening to corporate leaders was the rise of socialism, which was a system of thought advocating social ownership of property. There are many gradations in this philosophy, ranging from the extreme in the form of communism where there is total ownership of property by the state to the milder forms of socialism that led to progressive income tax, social security, and universal education. The fears of corporate leaders around the world were fed by the communist overthrow of the Russian czar and the imposition of a Marxist state. Post WWI labor party reforms in Great Britain further fed their fears. These reforms included the nationalization of a large proportion of industry in Great Britain, a National Health Service, and public housing. Socialism as bloody

totalitarian overthrows and as milder democratically guided economic reforms seemed on the march in the 1920s and 1930s and appeared to threaten an eventual end to capitalism. ((<http://en.wikipedia.org/wiki/Socialism>)). Confronted with unionism, populism, and socialism, corporate leaders began to give serious attention to providing better working conditions for employees and reconsidered the iron-fisted, autocratic form of supervision that had dominated management practices during the 1800s and early 1900s.

World War II leads to widespread applications of I/O psychology. Ultimately, it was not the New Deal that ended the Depression but World War II. In 1940 the unemployment rate was still at fifteen percent. World War II produced many more jobs and finally got the U. S. and other nations back to normal. The evolution of I/O psychology from a minor offshoot to a recognized specialty within the field of psychology was a consequence of several influences, but none more important than WWII. The demands of this massive war effort, representing dramatic changes in the doctrine and technology of warfare, called for radical changes in the management of human resources. Psychologists of all kinds were summoned to help, and in the course of doing so they discovered a great deal about the potential applications of their specialized knowledge and techniques. All branches of psychology made huge advances under the exigencies of war—an ironic twist for a discipline pledged to the promotion of human welfare.



December 7, 1941 attack on Pearl Harbor, Hawaii

WWII provided massive evidence of the value of testing for selection and assignment of people according to job requirements. Naturally, industry recognized the potential applications of these techniques, and the use of testing increased dramatically after both wars. In addition, World War II produced important advances in techniques used to train people, many of which found peacetime application. Educational, experimental, and industrial psychologists all contributed significantly to the design of these training programs. One notable example was simulation training, a technique in which trainees could practice the basic operations required in a job (e.g., flying an airplane) on a replica of that job's environment (i.e., a simulator) without the risks and costs associated with learning in the actual situation. Today, the simulation approach has spread to the training of managers, professionals, and skilled technicians, and it remains a cornerstone of pilot training, both military and commercial.

In addition to selection, classification, and training developments, World War II fostered the creation of a whole new field based upon an entirely different strategy for improving human effectiveness. The essential idea behind it was that "human error" or poor performance is not always a matter of incapable or poorly trained personnel, but often reflects insufficient consideration of human characteristics in the design of the machines that people must operate. The field survived the war, and today constitutes a formally recognized discipline known in the United States as human factors and in the rest of the world as ergonomics. It encompasses a variety of human-oriented and design-oriented specialties, the psychological component of which is often called engineering or human factors psychology (Howell, 1991).

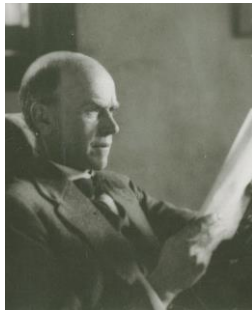
WWII also further reinforced the growing concern for worker rights and welfare. To succeed, it was vital that the vast defense industry keep running smoothly without interruptions. The manufacture of airplanes, guns, ammunition, uniforms, and all the other stuff of war could not afford strikes, walkouts, slowdowns, and other forms of resistance so often associated with autocratic management. To maintain harmony and avoid costly labor-management conflicts, the federal government imposed rules and procedures and created entire bureaucracies dedicated to implementing these rules and procedures. It was during the war years that many of the current wage and salary administration practices were created to ensure fairness in compensation of employees. It was also during the war years that labor arbitration and mediation began to avoid and resolve labor-management disputes. Human resource management dramatically changed during WWII from a primarily record keeping function that was focused mostly on reducing costs and increasing productivity, to a function that had a broader concern with human relations. Not surprisingly, psychologists had a lot to say about how this new human resource management function should operate.

### The Human Relations movement and neo-classical theories of management

What were social scientists and in particular, psychologists, doing during the post WWI and WWII years? One important development during this period was the conduct of empirical research to test alternative approaches to management. This was in contrast to the prescriptions of classical theory and scientific management, which seldom used rigorous scientific methods. One program of research, the Hawthorne studies, stretched over two decades and fueled a rethinking of the Classical and Scientific Management theories that dominated the early period. Two streams of thinking emerged in the middle years: the Human Relations movement and the Neo-Classical theories. Both schools of thought urged more attention to the needs of employees and questioned the assumption that employees will necessarily obey and submit if the principles of Classical Theory and Scientific Management were implemented. While raising questions, the Human Relations and Neo-Classical theorists accepted for the most part the organization as it was and the need for management to make the decisions. They were not avid proponents of allowing employees to participate in important decisions or decentralizing to empower those at the lower levels of the hierarchy. Rather, both approaches advocated ways of reducing resistance to managerial orders and taking a more people oriented approach was seen as key to achieving this objective.

The Hawthorne studies. The true scientific approach made a tentative entry into the field as early as the 1920s in the "Hawthorne Studies" conducted at the Chicago Hawthorne plant of Western Electric (Roethlisberger & Dickson, 1934). These studies began in 1924 and continued through the early 1930s. A variety of researchers participated including Clair Turner, Fritz J. Roethlisberger, W. J. Dickson, and Elton Mayo.

The illumination studies began in 1924 as a typical industrial engineering question about the relationship between worker productivity and the level of illumination in the work environment. The researchers were guided by the prevailing organizational philosophy of that era which assumed that workers are motivated solely by tangible factors, such as money and working conditions (illumination).



Elton Mayo: “.....problems of absenteeism, labor, turnover, ‘wildcat’ strikes, show that we do not know how to ensure spontaneity of cooperation; that is teamwork. Therefore, collaboration in an industrial society cannot be left to chance....”



Fritz Roethlisberger: “...the behavior of no one person in an industrial organization, from the very top to the very bottom, can be regarded as motivated by strictly economic or logical considerations...noneconomic motives, interests, and processes, as well as economic, are fundamental in behavior in business.”



## Illumination Studies



In the initial experiment, workers in three departments were exposed to varying lighting levels. To their surprise, the researchers discovered that productivity did not always decline when they lowered illumination. Intrigued, the researchers conducted two more illumination studies, each with tighter experimental controls than the first. Even with the systematic manipulations of lighting levels, worker productivity did not decline relative to the amount of illumination present. In one group, productivity continued to increase as illumination decreased, even to the point that the workers complained that they were hardly able to see what they were doing."

These results provoked the researchers to implement the second set of experiments, the relay assembly test room studies. In these studies, the goal was to isolate small groups of workers to control for factors that were believed to have potentially biased the illumination studies, such as personnel changes and departmental policies. The job the researchers chose to study was the assembly of telephone relays. Putting together the assembly fixture was highly repetitive but required considerable motor skill. During the course of these experiments, the researchers tested the effects of many different types of work-rest cycles. For example, manipulations included 5-minute breaks in the morning and afternoon, 10-minute breaks in the morning and afternoon, a series of six 5-minute breaks, and a 15-minute break in the morning and a 10-minute break in the afternoon. Regardless of the type of rest break introduced, productivity increased over the baseline levels found prior to the interventions. In the next phase of the relay assembly test room studies, the researchers investigated how shortening the workday influenced worker productivity. The manipulations included shortening the workday by 30 minutes (with rest pauses) and the workweek by one-half day (with rest pauses). In both cases productivity did not decrease. Again, productivity rose regardless of the changes in the length of the workday.



## Relay Assembly Room Studies



The tendency of workers to increase their productivity regardless of the changes made in the rest breaks and length of the work day suggested to the researchers that social processes had influenced work output. To test this possibility they launched the bank wiring room studies. Based on observations of fourteen men engaged in the assembly of wiring banks, the researchers found that the workers had developed a concept of a "proper day's work" and pressured any peer who did not comply with the group's standard. This social pressure was particularly evident for those workers who attempted to exceed the group's output quota, i.e., the "rate busters". These findings were quite surprising to the researchers and management because the organization's incentive system was based on higher pay for higher output. The rational course of action was produce more to make more money but the workers apparently went against their own best interests to win the approval and avoid the criticisms of their co-workers. These and other observations led them to conclude that social factors indeed were a powerful influence on individual worker productivity.

The research produced a new perspective on work organizations (Dessler, 1980). The results of these studies made behavioral scientists aware, for the first time that monetary incentives and the physical work environment are not the only factors that affect worker behavior. Indeed, the results suggested that peer pressure, informal group dynamics and recognition, and personal feelings of freedom and self-worth are more important than impersonal structural features, such as work methods and management control. Although these studies were flawed, they provide a fascinating example of how psychologists can apply the scientific method to organizational questions. The cumulative findings of the entire series of studies conducted at the Hawthorne plant led to several radical insights that departed from classical and scientific management (Roethlisberger & Dickson, 1939):

1. Employee attitudes and morale are crucial to employee productivity. A satisfied worker is a productive worker.
2. Employees work more for acceptance and social recognition than for money.

3. The informal work group was a major determinant of productivity.
4. It is employee's perceptions of the situation that are important, not objective reality. For instance, some employees after being asked what they thought of the food in the cafeteria perceived improvements when nothing had been done.
5. The technical and human components of the organization are interrelated and interdependent. Management must take both into consideration when implementing changes.
6. In dealing with worker resistance, management does not need to relinquish control or change the organization. Instead, good human relations practices are used to reduce resistance and gain acceptance of the workers.

The early Human relations movement. Mayo, Roethlisberger and the other researchers in the Hawthorne studies were known as the founders of the Human Relations Movement. According to the human relations school, the manager should possess skills for diagnosing the causes of human behavior at work, interpersonal communication, and motivating and leading workers. The focus became satisfying worker needs. If worker needs were satisfied, wisdom held, their productivity would rise. Thus, the human relations school focuses on issues of communication, leadership, motivation, and group behavior. The human relations school of thought still influences management theory and practice, as contemporary management focuses much attention on human resource management, organizational behavior, and applied psychology in the workplace.

Some basic ideas of the human relations movement (also called Mayoism) were:

1. Supervisors should act as friends and counselors to the workers. They should use humor to engage workers in friendly interactions. By satisfying employee needs for acceptance and security, such treatment will motivate them to cooperate with management.
2. The primary concerns of managers are the people, not productivity. Showing a people concern will achieve higher levels of productivity in the end than an overriding concern for productivity. The Mayo formula is: humanistic supervision plus morale equals productivity.
3. Managers should ask workers how they feel about their work -- and their supervisors. They can survey worker attitudes through informal conversations as well as in formal interviews and surveys.
4. Management should consult workers before changing things in the workplace. Allowing employees to participate will reduce resistance to management.
5. Managers must accept and encourage group dynamics in the workplace. Groups are not an impediment to productivity but are vehicles for achieving high levels of productivity.

The Human Relations movement especially in the form of "Mayoism" did not escape criticism. Questions were raised about the soundness of both the science and the thinking

underlying this approach (Bruce & Nyland, 2011). To the extent that the movement relied on the findings of the Hawthorne studies, critics have noted that the researchers gave a one-sided interpretation to their data and an overemphasis on worker-management harmony. Critics also have targeted the flaws in the design and execution of the experiments. The investigators in these studies deviated in several respects from good research design. Perhaps the most glaring error was that there was never an attempt to randomly assign workers to experimental and control groups. In fact, workers were often chosen because they were congenial and productive. In the course of the experiments, these already superior workers were given preferential treatment by both the researchers and management. At no time was the output of workers in the experiments compared with the output of other, comparable workers in the organization. Also, the number of workers actually studied was so small that sample size precluded any generalizations to the larger organization.

Other criticisms of the Human Relations movement included:

1. It was a “cow psychology” in which workers were treated as contented cows to increase their milk production.
2. It did not acknowledge that there were genuine conflicts of interest between management and employees within organizations. These conflicts required serious negotiation and were not simply smoothed over through good human relations.
3. It was manipulative. The human relations approach often accepted management decisions as givens and the objective of human relations was to reduce resistance to these decisions.
4. It was based on assumptions about people that were degrading. Workers were viewed as irrational children who management could coax into high levels of productivity through human relations.

Bruce and Nyland (2011) describe Mayo and the human relations movement as treating “workers as irrational, agitation-prone masses susceptible to ‘socialistic’ radicalism and, so, unfit for ‘voice’ in the workplace. For Mayo, the industrial unrest of his time was caused by ‘factors of unreason’ or ‘factors of irrationality’ and this irrationality among workers was the product of ‘disassociated’ or ‘obsessional reveries’. Applying the new medical psychology, he likened workers to shell-shocked soldiers in need of serious psychological/psychiatric attention. Crucially, Mayo dismisses workers’ calls for better wages and conditions and a ‘voice’ over same as ‘socialistic radicalism’ and as symptomatic of some deeper psychosocial maladjustment” (p. 289).

In spite of these well-warranted criticisms of the Hawthorne studies and the Human Relations approach both had a profound and enduring influence on the study of worker behavior. Their significance lays not so much in the specific results or conclusions, but in the ways they shaped future research. In fact, this chapter on job attitudes would probably not exist—at least not in its present form—if the Hawthorne studies had not convinced behavioral scientists of the pervasive effects of job attitudes on both organizational and personal functioning.

The neoclassical and other notable organizational theorists.

Other theorists emerged during the middle years who questioned whether management should accept the Classical and Scientific Management approaches hook, line, and sinker. Similar to the Human Relations movement none of these theorists rejected outright the ideas of centralized authority, specialization, and many of the other principles of the early years. However, they all pointed to limits of these approaches and advocated a kinder, gentler, and somewhat looser form of the Classical and Scientific Management approaches. Some of these theorists were called neoclassical theorists. As indicated in the "neo" they approached organizational theory from a somewhat new perspective but basically kept many of the tenets of the classical approach.

1. The unanticipated consequences of bureaucracy. During the 1930s, 40s, and 50s several social scientists, including Merton (1940), Selznick (1949), and Gouldner (1954), identified unintended consequences of implementing the recommendations of the classical and scientific management theorists. They based their comments on intensive case studies of organizations. Merton (1940) observed that efforts to control behavior of employees in an organization following the dictates of Classical and Scientific Management generally succeed in increasing the reliability and predictability of worker behavior and improving performance in meeting customer or client demands. In the long run, however, the same factors that lead to improvements can have unanticipated consequences that eventually work against meeting client needs. These unanticipated consequences include rigidity, defensiveness, and concern with organizational status. These unfortunate outcomes reflect the impersonal treatment of employees, the tendency of employees to internalize the rules of the organization, and the stereotyping of problems so that there is an unwillingness to consider alternative solutions to these problems.

Selznick (1949) observed that in the classical model of the organization there is delegation and specialization in the design of the organization. For instance, Fayol and others recommended as part of their principles that the CEO create functional units or departments (e.g., marketing, production, human resource management, accounting, etc.) and delegate to the heads of those departments the authority to make important decisions. Of course there are general strategies and policies that management must follow but as long as the middle and lower management ranks work within these guidelines, they make the day-to-day decisions and thus alleviate the top person from making every single decision. Specialized duties and functions are assigned to employees and training them in the performance of these activities, and each set of employees have subgoals that they pursue that help fulfill the overall organizational goals. All of this sounds fine, but an unanticipated consequence is that the employees within these specialized units and roles tend to lose sight of the overall organizational objectives and place increasing importance on their own subgoals. Conflict among units ensues. Each unit attempts to justify and rationalize actions in a way that distorts reality and detracts in the long run from effective performance.

Gouldner (1954) focused on the unanticipated consequences of general and impersonal rules. Specific rules as to what employees should, and should not do, improve the

reliability of performance but will also identify the minimum acceptable behavior. For instance, if a salesperson is told that the rule is that three cold calls are required per day, the employee may then focus on this as the minimum acceptable performance and only do three cold calls and no more than three cold calls. This unanticipated consequence will then provoke closer supervision of the employee that, in turn, increases the interpersonal conflict and tension between supervision and employees. The conflict will only further increase the closeness of the supervision and the cycle will continue with an ultimate decay of performance.

2. Barnard's cooperative systems view. Chester Barnard was an executive with extensive experience in both public and private sector management. Yet unlike the early classicists, his views were shaped as much by the emerging work of social scientists as by personal experience. In fact, his principal contribution was the attempt to reconcile the contradictory classical and human relations views through his concept of natural cooperation. For Barnard (1938), the essence of organization is the existence of a shared goal or purpose. An organization is effective to the extent that all employees regardless of position are loyal to the goals of the organization. Unless members put the organizational goals ahead of personal goals, the organization has little to offer society or its members and is unlikely to survive. A basketball team exists primarily to win games; a business, to make a profit; a government, to serve its public. If the members are preoccupied with scoring points, amassing personal wealth, or achieving political power to the detriment of the shared objective, no one wins. While this is consistent with the classical position, an organization cannot survive if it fails to recognize the needs of its members—goals that are often in direct conflict with the shared purpose. Moreover, formal authority is of little value unless those to whom it is applied choose to accept it. Disgruntled workers can restrict production, engage in sabotage, or simply quit. It is the organization's responsibility, therefore, to give individuals a fair return on their personal investment in terms that matter to them. In so doing, it ensures their compliance. It is management's responsibility to “sell” subordinates on the collective purpose and to help them see their stake in it. The college coach must convince her recruits that they must pass off more often and concentrate on defense if they are to win at the college level even though her players were all star point scorers in high school.

Barnard believed that organizations need rules, procedures, reporting relationships, managerial authority, and all the other recommendations of the classical and scientific management approaches. But these are not enough to ensure success unless the recipients of those orders and directions are willing to cooperate. Barnard distinguished among three types of orders.

\*First there are those that lie within what he called the “zone of indifference” and are accepted without question and are always obeyed. There are many orders involving routine duties that are in an employee's job description and are performed without resistance.

\*Second are those that may lie within the zone of indifference but come close to being unacceptable. These orders that employees may or may not follow. Much depends on

characteristics of the employee and what the employee's informal organization defines as acceptable and unacceptable.

\*Third are those orders that are outside the zone of indifference and are not acceptable to employees. They will result in disobedience. The key point in Barnard's theory is that all facets of an organization (individual and social, formal and informal) are concerned with achieving cooperation in pursuit of a common goal. In essence, both workers and managers take their orders from the requirements of the situation. The good leader seeks the middle-of-the-road positions where cooperation is assured or attempts to extend the zone of indifference through persuasion and good human relations. They avoid those issues that are far outside the zone of indifference.



Chester I. Barnard publishes the *Functions of the Executive*, 1938: "The responsibility of the executive is (1) to create and maintain a sense of purpose and moral code for the organization; (2) to establish systems of formal and information communication; and (3) to ensure the willingness of people to cooperate."

3. Mary Parker Follett (1868-1933). She was a Harvard professor of social work who was among the very few women in the early years who rose to prominence as a management consultant. Consistent with Barnard, she advocated a focus on human relations in which managers would use power as a principle of "with" rather than a principle of "over". The power of the manager does not accrue as the result of asserting rewards and punishments of the legitimacy of the office held. Rather the power of the manager derives from how the manager functions in the position. She is given credit for first identifying the groupthink effect in which committees engage in conformity, brainstorming as a creativity exercise, an early form of MBO (Management by Objectives), and the notion of Total Quality Management/Continuous Quality Improvement (TQM/CQI). She was a strong advocate of empowering employees by sharing power with them. Although Follett did not have nearly the impact on U. S. management practices as Barnard, Japanese managers discovered her writings in the 1950's and give her credit for helping them rethink their management styles.



Mary Parker Follett publishes the “Creative Experience” (1924): “The best leader knows how to make his followers actually feel power themselves, not merely acknowledge his power.”

### The Post WWII Era (1945 – 1965)

In the immediate post WWII years (1945 - 1965) the field of I/O psychology matured into a distinct sub-discipline of psychology along with other more established sub-disciplines such as clinical, social, and experimental psychology. During this period, I/O psychologists increasingly identified themselves with either the human resource management wing (the I of I/O) or the organizational development wing (the O of I/O). Both were led by the scientific method and during this period there was an explosion of research on leadership, group dynamics, personnel selection, performance appraisal, and all the other topics covered in the text. Much of the work during the two decades following WWII built on the contributions of psychologists during the 1920s, 30s, and WWII. For instance, some psychologists were busy developing and evaluating psychological tests and constructing increasingly sophisticated statistical tools. Other psychologists were engaged in research testing notions about leadership and group behavior that sprung from the human relations movement.

### Rapidly accelerating change in a period of progress and turmoil

Beginning in the late 1960s and continuing through to the present day, more complex views of organizations and how to manage people within organizations evolved. In contrast to the closed systems assumptions of the classical/scientific management and the human relations movement, organizations were viewed as open systems. To understand and effectively manage people in organizations one had to take into account the cultural, political, economic, and technological contexts of the organization. Moreover, managers had to approach the organization as an interdependent set of systems consisting of people, groups, organizational structure, and technology. Changes in one part of this system had implications for other parts of the system. Rather than asserting one-best way solutions, the research identified the conditions under which a classical/scientific management approach or a human relations movement is effective. Rather than universalistic theories, contingency theories of organizations and management tended to dominate thinking and practice. These changes did not occur in a vacuum but were influenced by historical, social, and economic changes. Three events seem particularly important in the two

decades following WWII: economic growth and the dominance of the U. S., the cold war, and the space program.

Economic growth and the dominance of the U. S. The postwar period ushered in a sustained economic boom that was to extend, with minor fluctuations, over most of the next three decades. The birth rate, which had been depressed during the 1930s, rebounded dramatically (the so-called baby boom). Labor unions continued to grow in membership and influence and the standard of living in the U. S. became the envy of the world (Kochan & Barocci, 1983). Buoyed by military success, yet conscious of the devastation that the war had wrought on friend and foe alike, the old spirit of self-confidence returned, together with a healthy sense of compassion.

Isolationism, the idea that America could do nicely without the rest of the world and should not meddle in its affairs, was prevalent before the war but was overwhelmed by subsequent events. Comprehensive economic aid plans for war-torn Asia and Europe were implemented and supported enthusiastically by the public. Undoubtedly, forward-looking business leaders also realized that such restoration represented an initial step toward opening vast new markets for their wares, although this was of little immediate consequence given the pent-up demand for goods and services at home. What even the most enlightened failed to anticipate was that the restoration of Japan and Western Europe would also bring serious economic competition.

The cold war. Among the most significant of all the consequences of the war was the economic and political division of the world along capitalistic-communistic lines, the emergence of the Soviet Union as a superpower, and the threat of nuclear war. For the next 45 years the cold war isolated Eastern from Western societies and created on both sides a sustained atmosphere of fear, political competition, and military escalation. Military spending became a dominant force in the economies of both the U.S. and the Soviet Union as President Dwight Eisenhower foresaw when he warned in his farewell address against uncontrolled growth in the military-industrial complexes. Psychological research was a beneficiary of this spending as the military services sought behavioral means to improve the effectiveness of fighting forces.

Space exploration. Closely associated with the Cold War was the space exploration race between the former Soviet Union and the United States. In the 1950s, the apparent winner was the Soviet Union and the threat of Soviet military platforms orbiting the earth and on the moon triggered a massive effort on a national level to upgrade education at all levels. Fueled by fears that the Soviet Union would dominate space, President John F. Kennedy in 1961 set as a goal the landing of a man on the moon by the end of the decade (<https://www.youtube.com/watch?v=g25G1M4EXrQ>). NASA funded research on such topics as team behavior, human stress, and other topics critical to the success of manned spaceflight and was a major stimulus to I/O psychology research, theory, and application. In the end the United States won the race to the moon, but the application of I/O in this area continues.



### Major events: The cold war (1945 – 1989)



The National Aeronautic Space Administration (NASA) was created and teams of engineers, scientists, and technicians engaged in what seemed an impossible task. NASA, which was charged with developing and launching manned spacecraft and exploring outer space was faced with not only a daunting technological challenge but also with challenges related to human performance and organization. A spinoff of the NASA achievements was a new way of conceiving of organizational structure. The old classical model in which managers and employees were held to a strictly hierarchical chain of command did not work in coordinating the efforts of engineers and scientists on a task as complex as transporting men to the moon. An organizational design was needed that would allow teams of employees to coordinate their efforts in the various details of the space mission, encourage creativity, and at the same time maintain control over the entire process. The type of organization that emerged was the matrix organization which required a much more complex view of the organization than those set forth in the classical and human relations approaches.



One consequence was the matrix organizational structure. The matrix organization is an attempt to capitalize on the advantages of organizing around projects and functional organization while minimizing the downsides to each. In the traditional functional organization, each part of the organization (e.g., marketing, research, and manufacturing)

may lose sight of the products or services that the organization is trying to generate. In the project organization, which is based around products or services, there are usually inefficiencies in coordinating the various functions. A matrix organization attempts to avoid the downsides of each type of organization by combining the project and functional structures. Each project manager in this structure is responsible for completing the project and must work with functional managers who assist in mustering the functional resources needed at various stages of the project. In violation of the classical principle that each employee reports to one and only one manager, each employee in a matrix organization reports to two managers. One example is the matrix organizational structure of the NASA Jet Propulsion Lab. Along the right side of the organizational chart are the projects of the JPL, Mars Exploration, Earth Science and Technology, Solar System exploration, etc. Each of these consists of project teams led by project managers. Along the top of the chart are the functions performed by JPL including Business Operations, Engineering and Science, and Safety. Another example is illustrated in the figure below. There is a functional structure represented by research, production, sales, and finance and product structure and product teams. Employees are assigned to both a function and a product. Each one reports to a functional manager as well as a product manager. Matrix structures are complex and require new approaches to managing people (<http://www.buzzle.com/articles/matrix-organizational-structure.html>).

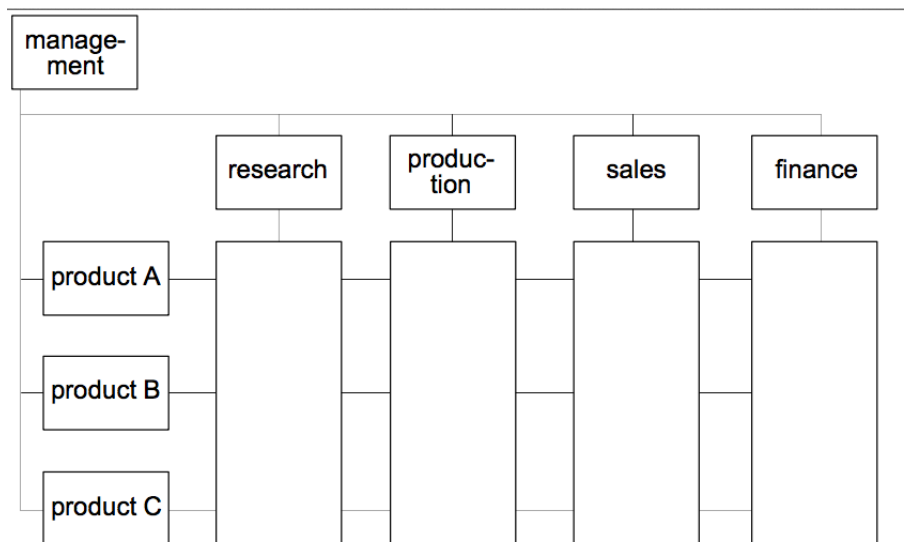


Figure 2.3: A Matrix Organizational Structure

The civil rights movement. In the mid-1960s, large numbers of baby boomers entered early adulthood; the U. S. and other nations finally were forced to come to grips with their discriminatory treatment of minorities and women. Although the immediate post-WWII period was one of sustained prosperity in the United States, the contrast between the "haves" and "have nots" was never more visible. And most disturbingly of all, a society that prided itself on its orderly, civilized institutions of governance and justice suddenly found itself replacing leaders through assassination and forcing change through violent protest. The whole fabric of U. S. society seemed to come apart at the seams. Violent disagreement over the Viet Nam War, civil rights, economic policy,

environmental policy, consumer affairs, and many other issues split society into polarized factions. The baby boomers, the most vocal demographic group, forced the U. S. and other societies to take a hard look at the collective values that had been taken for granted.

The implications of all this for organizations and I/O psychology were profound. The prevailing attitude among young people about to enter the workforce was that profit-making organizations and many other institutions were immoral. They saw them as part of the establishment that gave us war, poverty, discrimination, and pollution purely to satisfy selfish motives. Companies found recruiting very difficult, and the young people they were able to attract were difficult to assimilate into the traditional corporate culture. This new breed of employees had its own ideas about personal appearance, lifestyle, and corporate values. They tended to question authority. It was not an easy time for managers raised in the classical tradition. Other longstanding traditions were challenged as well, such as the organization's prerogative to hire, promote, and fire whomever it wished. Out of the turmoil came a mass of legislation and case law on civil rights, and a federal agency, the Equal Employment Opportunity Commission (EEOC), to implement it. Companies were forced to break old patterns of discrimination against women and minorities, although in most cases not without considerable resistance.

## Major events: Civil rights movement



Not surprisingly, the management philosophies and personnel management techniques that had earlier been dismissed as impractical resurfaced under these chaotic circumstances. The climate was right for organizations to consider new ways of managing their affairs. In many instances they had no choice. The new generation of employees, civil rights laws, declining productivity, and foreign competition were the new realities; something had to be done.

### The rise of organizational psychology

I/O psychologists in the decade following WWII focused their attention on human resource management (the I side). They conducted research on assessment tools and

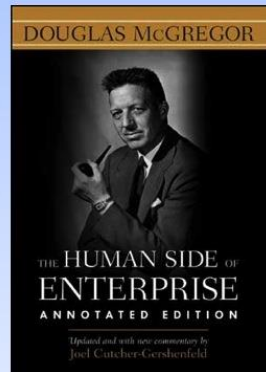
programs that management could use in job analysis, compensation, performance evaluation, personnel selection, and training. This work lacked a theoretical foundation and led to accusations of "dustbowl empiricism" in which psychologists accumulated data without any unifying conceptual frameworks to provide coherence to the mass of findings. With the emergence of organizational psychology, the focus shifted to theory and research that examined the interplay among individual, group, organizational, and contextual factors. Organizational psychologists realized that no one discipline had the complete answer either to the question of what organizations are or how management should design and manage them. They drew liberally from disciplines besides psychology, including anthropology, sociology, political science, and even economics. Three organizational perspectives were dominant in the post WW-II years: the modern human-relations theorists, the decision theorists, and the open systems/contingency theorists.

Modern human relations theorists. In the post-world war II years the old human relations movement evolved to incorporate more complex perspectives on the organization. Perhaps the most important difference between the modern human relations theories and the earlier movement was that the modern approaches advocated changing the organizational structure to increase employee participation and involvement whereas the earlier approaches tended to see human relations as a way of gaining cooperation without changing the organization. The applied field of Organizational Development emerged using the modern human relations theories as the conceptual foundation and advocating that the organizational psychologists serve as a change agent. Douglas McGregor, Rensis Likert, Chris Argyris, and Warren Bennis were four of the more important of these theorists.

Douglas McGregor was a professor at the MIT Sloan Management School who proposed that assumptions about human nature were responsible for the ways that employees were managed in organizations. The classical and scientific management approaches were based on a Theory X set of assumptions in which people were considered to be untrustworthy, lazy, and motivated primarily by money. These assumptions were probably appropriate at the time but in the post-World War II years, McGregor believed that a new set of assumptions were needed. Theory Y assumptions that people seek challenge, autonomy, and responsibility. If management involves creates a work environment in which employees can grow and take responsibility, employees will demonstrate a high level of motivation and creativity. Unlike the older human relations movement, McGregor proposed fundamental changes in organization to incorporate Theory Y. These included allowing employees to participate in decision making, enriching jobs, elimination of traditional performance appraisal, the creation of autonomous work teams, and the development of employees. He stated his views in The Human Side of Enterprise, a best seller and one of the most influential management books of the 20<sup>th</sup> century (Head, 2011).

## Douglas McGregor

Acceptance of Theory Y does not imply abdication, or “soft” management, or “permissiveness.” ...Theory Y assumes that people will exercise self-direction and self-control in the achievement of organizational objectives to the degree that they are committed to those objectives (McGregor, 1960, p. 56)



Rensis Likert (pronounced Lick-urt), a University of Michigan professor and social psychologist, was among the most influential change agents of the era. An essential component of his theory was that better performance would result if the whole organization moves toward a more open, participative system in which employees are allowed to become involved in important decisions. Among the successes attributed to this group was a complete overhaul in the management style of a failing textile manufacturer, the Weldon Company. Although various explanations have been offered for what happened at Weldon, its profitability did improve and the increased supportiveness and participation of management were widely cited as reasons (Likert, 1961; Marrow, Bowers, & Seashore, 1967). Consequently, both Likert and his theory received a lot of attention. In fact, a play loosely based on this case, The Pajama Game, became a major Broadway hit! (see [https://www.youtube.com/watch?v=c2Xi\\_IyHYNc](https://www.youtube.com/watch?v=c2Xi_IyHYNc) for a scene from the movie).

## Rensis Likert



“The greater the loyalty of a group toward the group, the greater is the motivation among the members to achieve the goals of the group, and the greater the probability that the group will achieve its goals.”

Rensis Likert (1903-1981) is also well known for inventing the 7-point rating scale, also so-called "Likert scales" and for his research and theorizing on leadership in the

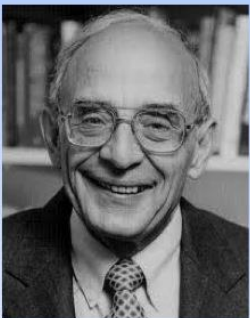


"University of Michigan studies." In general, he advocated more employee-oriented leadership and supportive management. Consistent with the human relations movement started by the Hawthorne studies, Likert recommended that managers engage employees in participative decision making and provide emotional and social support.

Chris Argyris (1964) was another psychologist who built on the human relations movement. He theorized that the normal healthy progression in human development is usually reversed when adults enter an organization. Healthy human growth is from the passivity that exists as an infant in which there is dependence on the parents, to increasing self-determination and assumption of responsibility during the adult years. When a person enters an organization, he or she is assigned to a narrow set of tasks and is forced to regress to the state of dependence more characteristic of a child than an adult.

## Chris Argyris

"Ideally, healthy development in our culture involves growth from being passive as an infant to being active as an adult; from being dependent to being relatively independent; from being in a subordinate position to achieving equal or higher position than friends achieve; from expressing few and shallow abilities to expressing many and deeper abilities. If formal organization is defined by the use of such principles as task specialization, unity of direction, chain of command, and span of control, then employees work in a situation in which they tend to be dependent, subordinate, and passive to a leader. This type of situation may create frustration, conflict, and failure for the employee. He may react by regressing, decreasing his efficiency, and creating informal systems against management." (Argyris, 1957, p. 1)



This frustrates the inherent needs of humans to grow as individuals and as a defense mechanism the employee becomes passive, withdrawn, and apathetic. Consequently, the lazy worker stereotype of the autocratic manager is a self-fulfilling prophecy in which the autocratic actions of the manager are responsible for the perceived laziness of the worker. Similar to Likert and others in the human relations movement he recommended that managers involve employees in decision making and that they also attempt to create openness and authenticity in their relationships with employees.

Warren Bennis (1969) is a fourth organizational psychologist who built on the work of the human relations movement. He proposed that with an increasingly complex society and technological innovations, it is inevitable that organizations will need to become more democratic and engage employees as partners in decision making rather than as subordinates. He described democratic management in terms of the following characteristics:

- \* Authentic and open communication among all employees, regardless of their rank.

- \* Resolving conflict through problem solving and consensus rather than by forcing solutions or avoiding conflicts.
- \* Influencing people through personal expertise and technical competence rather than using rewards, punishments, and one's office or title.
- \* Creating an organizational climate where people feel free to express emotion.

According to Bennis, “The study of leadership will be increasingly collaborative because it is precisely the kind of complex problem—like the genome—that can only be solved by many fine minds working together” (2007, p. 4).

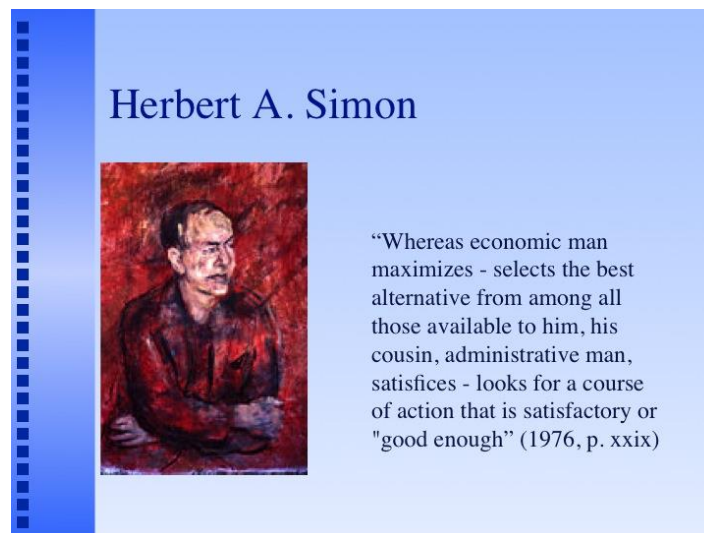
Other scholars in addition to these individuals could be discussed, including Alfred Marrow, John French, Kurt Lewin, Stanley Seashore and John Coch who contributed to the growth of organizational psychology (the O of I/O psychology) in the two decades after WWII. Although they all conveyed a strong human relations theme in their work, unlike the early human relations movement they were, for the most part, researchers as well as theorists. Also, in contrast to the early these theorists recommended training supervisors in showing understanding and supportiveness in the management of employees. The organizational psychologists of this period advocated Organizational Development (OD) interventions in which the target of change was the entire organization. Although still adhering to the humanistic principles of the human relations movement, they were moving in a more open systems direction by bringing attention to the fact that simply changing supervisor behavior is unlikely to succeed without changing other aspects of the organization.

The decision theorists. Other theorists in the first decades after WWII built not only the human relations movement but on information and decision making theories. These ideas are partly economic, partly psychological view of organizations as decision-making entities. Classical economic theory assumes that both individuals and organizations are rational economic entities that attempt to maximize positive outcomes in the choices they make. In contrast to this traditional view, a school of thought championed by Herbert Simon, a Nobel-prize-winning psychologist/economist, and James March, an organization theorist, argued that neither people nor organizations make strictly rational decisions (Cyert & March, 1963; March & Simon, 1958). For one thing, they have limited information-handling capability, have only a vague sense of what they really want, and have limited opportunities to gather information. People “satisfice” rather than “optimize,” to use Simon's (1957) terms. People make decisions on the basis of what Simon (1957) called “bounded rationality.”

For its part, the organization behaves even less like a rational, goal-directed entity than individuals do. Composed of a host of individual and collective goals, many in direct conflict with each other, it functions as a loose, shifting coalition that makes do in the present rather than following a charted course to some future goal. When it succeeds, it does so by incremental improvements over its present condition, not by systematic pursuit of a well-defined objective. March and Simon's (1958) view suggests, among other things, that a person must understand human cognition, motivation, and influence mechanisms to manage effectively. Moreover, designing organizations to function

optimally in a rational sense cannot begin to achieve the hoped-for results.

A theorist who based his own theory of organizations on these developments in decision making and information processing was the sociologist James D. Thompson (1967). He proposed in Organizations in Action that the design of organizations, the management of people in these organizations, and the decision making of those responsible for these organizations are driven by a basic human desire to reduce uncertainty. Closed systems models of organizations in the form of the Classical/Scientific Management and the Human Relations Movement reflect this tendency to reduce uncertainty by imposing universal assumptions (e.g., all people are motivated by money and management must closely supervise them or all people are basically motivated by social needs and management should make them feel wanted and loved).



To quote Thompson:

"the organization has a limited capacity to gather and process information or to predict the consequences of these alternatives. To deal with situations of such great complexity, the organization must develop processes for searching and learning, as well as for deciding. The complexity, if fully faced, would overwhelm the organization. Hence, it must set limits to its definitions of situations; it must make decisions in bounded rationality. This requirement involves replacing the maximum-efficiency criterion with one of satisfactory accomplishment - decision-making now involves satisficing rather than maximizing (Thompson, 1967, p. 9)."

The open systems/contingency approach. So far the chapter has discussed two contrasting approaches that emerged from the experiences, research, and theorizing of managers and social scientists in the first half of the 20th century. As already discussed, the Classical and Scientific Management theories were dominant in the early years. The organization was depicted as a machine that runs best when there is authoritarian leadership, highly specialized tasks, technical supervision, a focus on individual employees, a hierarchical structure, centralized decision making, and the use of monetary incentives. The early

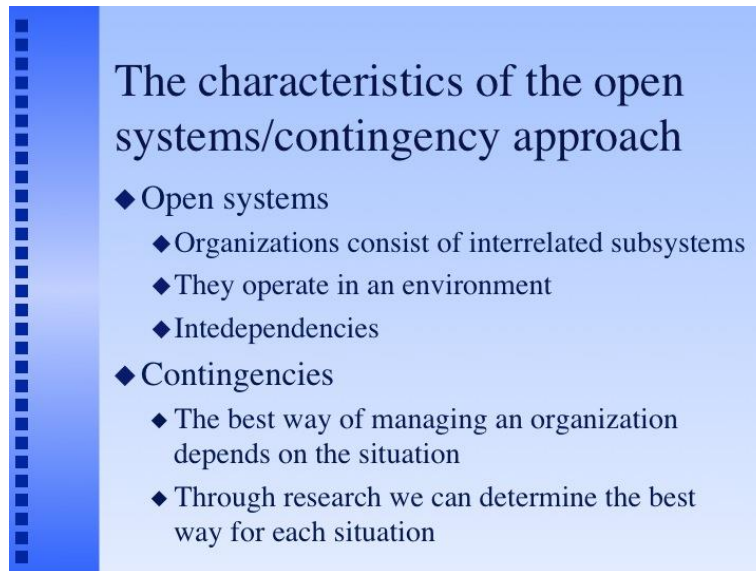


human relations movement (i.e., Mayoism) suggested psychological ways of gaining acceptance and reducing resistance to this approach. The modern human relations approach emerged during the post-World War II years and viewed the organization differently. This approach stated that organizations are not machines but collections of people whose needs and attitudes are important. From this perspective the ideal organization is participative, engages employees in interesting and challenging work, emphasizes the human relations skills of supervisors, is focused on managing groups of employees rather than individual employees, uses an organizational structure that contains relatively few levels and is decentralized, and uses higher level human needs such as social and self-esteem needs to motivate employees.

Classical/Scientific Management	Modern Human Relations Approach
■ Authoritarian leader	■ Participative
■ Task specialization	■ Task enrichment
■ Emphasis on technical skills	■ Emphasis on human relations skills
■ Individual focus	■ Group focus
■ Hierarchical structure	■ Flat structure
■ Centralization	■ Decentralization
■ Motivation through monetary incentives	■ Motivation through growth, social, and esteem needs

Both of these approaches had insights into the management of people in organizations that were correct, useful, and fit the societal events occurring at the time they emerged. Both were also simplistic in light of the turbulence and instability of the post-world war II period. In a closed system there is relative certainty about what is happening and what managers should do because there is little need to worry about unexpected events inside and outside the organization. Closed systems thinking is tempting because it makes decision maker feel better about their choices. Such thinking probably made sense in simpler times, but in the context of the increasingly complex and unstable environments with which organizations must contend, closed system thinking is vulnerable to disastrous, unexpected events. Gradually, an understanding of the true complexity of work organizations began to emerge, and the insufficiency of simplistic prescriptions such as those offered by either the mechanistic or the human relations movement became apparent. The research in the two decades after WWII made clear that while each was appropriate in some situations, neither is universally correct or incorrect. One cannot ensure effective management by making workers happy and capitalizing on informal group processes any more than one can by planning and directing their every move. The best way of designing and running an organization depends on a host of considerations at the individual, group, and macro-organizational levels. This general philosophy is the open systems/contingency approach. This third approach combines many of the elements

of the organizational psychologists of the 1945-1965 period and the decision theorists. It evolved directly from the knowledge accumulated from scientific research and remains dominant to this day (Scott, 1987). The primary attributes of the open systems/contingency approach are a rejection of universality and the assertion of contingencies, attention to the environments in which organizations operate, and the interdependencies among subsystems and between the organization and the environment.



1. Contingencies. Open-systems/contingency approaches assume that there are alternative ways of reaching the same goal and reject the universality of the solutions proposed in the Classical and Scientific Management as well as the Human Relations movement. In the open-systems/contingency approach, the best approach is contingent on the situation. What works in one situation may not work in another and in deciding what to do one must carefully consider the situational factors at work. Determining these situational factors requires research. Much of the discussion in this text is devoted to the findings of research that led to contingency statements about work motivation, work-related attitudes, motivation, work groups, leadership, selection, performance appraisal, stress, and other topics in I/O psychology.

2. Open-systems are embedded in an environment. As depicted in figure 2.4, the open-systems approach depicts the organization as existing in various environments. The environments of the organization were largely ignored in the Classical and Scientific Management theories as well as in the early Human Relations movement. The mechanistic (classical and scientific management) approaches and the human relations approaches assumed that organizations were closed systems and ignored what is outside the organization and outside each subsystem.

The environment of the organization refers to all those things that are outside the organization that influence how the organization functions, including the economic, political, legal, cultural, technological, and other contexts in which the organization must operate. Unlike a closed systems approach, an open systems perspective recognizes what

is outside the boundaries of the system and the organization's attempt to adapt to the environment. If the customer base, labor market, or prime interest rate changes, or the government introduces a new environmental regulation, the system knows about it and responds. In fact, it attempts to anticipate the changes so as to respond early enough to cushion or avert the blow. For example, an auto manufacturer might conduct market surveys to determine how potential buyers (customers) would like a proposed change in the design of its automobiles. If the results indicated a strong negative reaction, the company might think twice before implementing it and avoid a costly mistake. It is important to recognize that the boundary separating the system from its environment is more than just the physical limits within which it operates. A boundary can have symbolic, cultural, and psychological features as well. Political action groups such as Mothers Against Drunk Driving (MADD) or anti-abortionists (right-to-life movement) are primarily distinguished by these conceptual boundaries, which they work constantly to expand.

Environments also exist at the subsystem levels of the organization including the individual worker, work group and other departmental units, the technologies used, and other component levels of the organization. At the level of the people in the organization the environment includes contexts within the organization such as the work group, the department, and the organization as a whole, as well as contexts outside the environment.

3. Interdependencies among subsystems and with the environment. A supervisor using closed-systems thinking can decide how to manage his workers without worrying about other workers in the plant, other work units, the nature of the technology, or events occurring outside the organization. The CEO using closed-systems thinking can decide how to run the entire organization without worrying about outside forces or the complex interdependencies within the organization. In contrast to a closed system approach, open systems approaches depict individuals, groups, technology, leadership, and other component elements of the organization as interdependent with each other and interconnected with forces outside the system.

This brings us to another important characteristic of open systems: interdependency. Interdependency means that everything depends on and affects everything else. Interdependency exists between the internal components of the organization and the environment of the organization. Increased foreign competition is an environmental factor that may require that the organization change the size and composition of its workforce, its job descriptions, its compensation schedules, its management structure, and a host of other internal characteristics to continue functioning effectively. The existence of a strong labor union is another potential environmental factor that would influence the people, technology, structure and leadership of the organization. Still another potential environmental factor is government regulation of the selection, training, compensation, supervision, and other aspects of the management of employees in an organization. Other environmental factors, in addition to these, shape the people, technology, strategy, structure, and leadership of the organization, and are in turn influenced to some degree by what happens inside the organization. There is also interdependency among the internal components of the organization (e.g., the people,

technology, structure, strategy, and leadership of the organization).

Changes in any one component have implications for the other components. Also, changes in any one component (e.g., enrich or simplify the jobs, change leadership, introduce new technology, change the structure of the organization in the direction of more or less centralization) requires taking into consideration the other components.

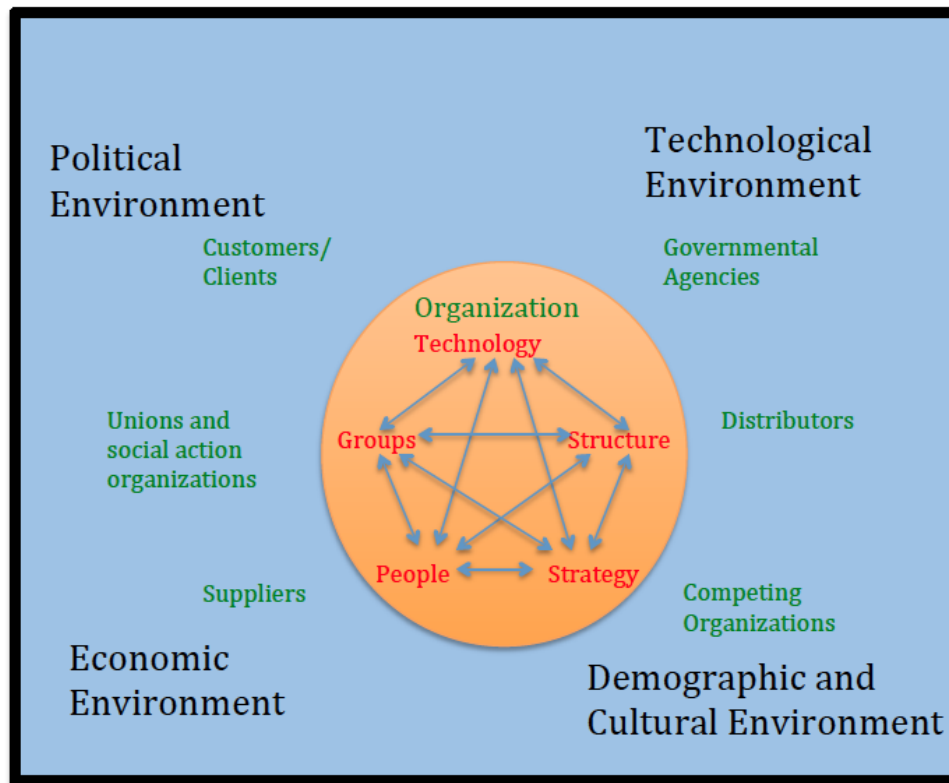


Figure 2.4: Interdependence among subsystems of the organization and between the organization and external environments.

4. Predictions from an open systems/contingency approach. Open systems/contingency approaches propose that organizations will naturally evolve to cope with and adapt to the environment. How well the organization performs depends on whether the ways that they evolve fit the environment. Organizations characterized by high uncertainty tend to adopt structures and practices more in align with a human relations or humanistic model. On the other hand, organizations operating in environments characterized by certainty and routine tend to adopt mechanistic structures such as those proposed in the classical/scientific management theories. Not only do organizations tend to adopt these structures but also those organizations that deviate from these tendencies do not appear to perform as effectively as those that conform to these tendencies. Lawrence and Lorsch (1967) provided one of the earliest demonstrations. These researchers compared the structures adopted by successful and unsuccessful firms in two different industries. The successful firms in the container industry, which operated in more stable environments,

tended to have structures consistent with a mechanistic model (classical/scientific management). The successful firms in the plastic industry which had to contend with more unstable conditions, tended to have structures more in line with a humanistic model (i.e., a model consistent with a human relations approach).

Organizational theorists such as Tushman and Nadler (1978) would agree with the decision theorists that how effectively managers process information and make decisions are critical to organizational effectiveness. In performing these two tasks one could use a vertical approach as advocated in Classical Theory and Scientific Management or a horizontal approach as advocated in the Human Relations (Humanistic) approach.

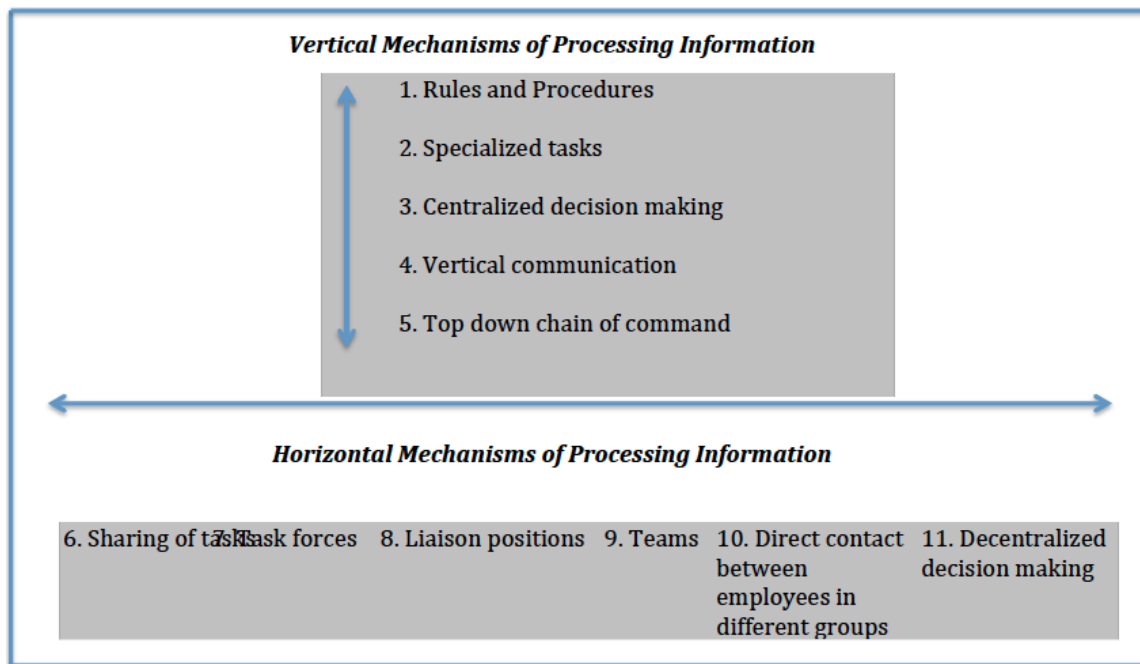


Figure 2.5: Vertical and Horizontal Mechanisms of Information Processing

In organizations operating in environments where there is relatively little competition, a low level of technological innovation, and other characteristics of a simple, stable environment, the vertical mechanisms dictated in the Classical and Scientific Management approaches may well suffice. Consistent with these approaches, top level managers might use (1) vertical means for processing information, requiring that all important matters pass through their hands for consideration, (2) impose rules, procedures, and other bureaucratic tools, (3) design work with specialization in mind, and (4) motivate workers with monetary incentives for doing the job in the one best way that research has identified. Vertical means of processing information emphasize efficiency of operations at the cost of flexibility and innovation. Vertical means of processing information also imply respect for authority as those higher in the organization dictate to those below how they should perform their tasks. In summary, in a stable, low complexity environment managers might make the decisions, employees are required to follow rules and procedures on all matters, with each member of the organization performing a specialized task and expected to submit to a central authority.

In a relatively simple, stable environment all of this may work quite well. What happens, however, as environmental complexity and instability increase? One likely consequence is that top level managers are unable to process the information or keep up with the rapid changes occurring in the environment of the organization. At this point they attempt to process the information through horizontal procedures more characteristic of the modern human relations approaches. Workers are consulted and allowed to participate in decision making. Managers may encourage more open communications rather than adhering strictly to the chain of command. These deviations from the hierarchical rule of an organization rely on the cooperation of the people involved. and to gain this cooperation, managers will need to pay attention to worker needs and morale. The modern Human Relations approach is consistent with the loosening of the way organizations are run. The use of horizontal information processing mechanisms also implies opportunities for learning as employees interact more freely with others in the organization and in the process acquire new competencies. In summary, when operating in a complex, unstable environment management will need to allow more open and horizontal communication, more participation of employees in decision making, rely more on groups, and place less emphasis on rules, procedures, and specialization.

5. Examples. To illustrate consider three hypothetical examples. The Couch Potato TV store is run by Ralph. At the start of the store in the 1950s, Ralph supervises three employees and operates in a rather stable situation. There are few competitors in the neighborhood, and there is little uncertainty about the types of TVs to sell or the nature of those TVs. They are black and white and only 2 or 3 companies manufacture them. The employees are low wage part-time employees who are easily replaced if need be. Ralph could run this store as one person and for the most part call the shots as he sees fit. Let us assume that Couch Potato TV is successful and as a consequence, Ralph decides to expand. Now color TV has entered the market and there are many more product lines and manufacturers. The basic nature of the technology has not changed dramatically but demand has increased and to meet this demand Ralph moves his business to a larger store, hires more employees, and expands his product line. With increased demand and product line running the shop as a one-person show is more difficult. It's simply too much for one person to handle and as a consequence he implements some changes to help deal with the increased work load and to make sure his employees satisfactorily sell the TVs and perform their duties correctly and efficiently. Ralph has just read the writings of Fayol, Weber, and Taylor and constructs a set of rules and procedures to govern how things are done in the store. So in essence, Couch Potato TV has implemented a mechanistic model following the dictates of Classical/Scientific Management theorists.

All is fine, but as time passes, Ralph finds that the stable environment in which his store operates is becoming increasingly unstable and complex. There is an increased focus on energy conservation, environmentally friendly practices, diversity in the workforce and consumer tastes, and increased rules and regulations at the local, state, and federal level. There is more competition. Other TV stores are moving into the neighborhood. The variety of TVs has dramatically increased from the old days when only three or four could serve as the product line. The technology changes at an accelerating pace with the

introduction of solid state technology, desk top computers, and the internet. Government regulations have increased such that Ralph must pay much more attention to how he manages his workers. Things have changed within the organization as well. In the past, workers seemed grateful to have a job and never questioned his authority. The employees who now work in his shop are not as submissive and frequently question the ways things are done. At the same time, Ralph is not an engineer or a computer expert, and he is increasingly dependent on the expertise of the employees.

At this point the reliance on a hierarchical, rule driven, and efficiency focused management style simply does not work in processing the amount of information available. To deal with the complexity he also decides to have employees participate in decision making and encourages full communication among them rather strictly adhering to the chain of command. This loosening up of Couch Potato leads to a recognition that employees have a variety of needs in addition to money and that a more human relations approach is needed in which employees' feelings and perceptions are taken seriously. Ralph has not thrown out the rules, procedures, and many of the other components of the Classical model but has added horizontal means of processing information to these vertical means of information processing.

Now let us consider another hypothetical company...Wizard Manufacturing. Wizard consists of four major departments: marketing, production, research and development, and finance and accounting. The CEO of Wizard. Homer Simpson...runs this firm with an iron hand. There is an emphasis on following the rules and procedures. Workers are expected to obey and submit to their supervisors and little room is given for individuals to veer from the methods that have worked so well for Wizard in the past. The firm is also run with an emphasis on the individual rather than the team. There are individual financial incentives for good performance. Each worker is given a specialized set of tasks to perform and he or she is responsible for these tasks without asking or giving assistance to other workers. Workers are expected to keep social interaction to a minimum during work hours and to concentrate on their individual duties. Communications within the organization pass up and down the line with little horizontal interaction. Workers are expected to go through their immediate supervisor first when attempting to communicate with other workers in the organization. If one were to use the McGregor distinction between Theory X and Theory Y, Wizard is definitely a Theory X firm in its management styles, communication patterns, decision making, mechanisms for motivating workers, and bureaucratic structures.

This way of operating has worked well for Wizard but now there is increasing competition and growing uncertainty due to changing consumer demand and technological innovations. A mid-level manager at Wizard...Dudley Dooright... believes that a Theory Y approach is more effective in coping with these changes. With the permission of the CEO, Bart decides to organize his department around teams of workers. These teams are allowed to participate in important decisions. Moreover, rules and procedures are deemphasized. Rather, workers are expected to show initiative and to innovate. Dress requirements are loosened as well work schedules. Now workers can often work at home or vary their schedules. These new procedures work very well. The

productivity of Dudley's department is very high and much higher than prior to the changes. However, complaints soon arise from workers in other parts of the company about the freedom that Dudley's group has been given. Dudley's group comes up with many new and creative ideas but the rest of the company remains skeptical and ignores most of them. There is growing pressure on the CEO to bring Dudley's department back in line with the rest of the organization. Eventually, the CEO orders Dudley to restore his operation to the way it previously operated.

Open systems/contingency theory provides an understanding of what is happening in this case at two levels...the organizational level and the level of the subsystem. From the perspective of the company as a whole, classical/scientific management has worked well and probably fits the situation. However, that situation is changing and Dudley Dooright is probably right in wanting to move the company in the direction of more horizontal mechanisms that would allow for more flexibility and adaptability. At the level of the subsystem, one sees open systems/contingency theory at work. Wizard is a system and as such there is interdependence among the various subsystems. One cannot change one subsystem without taking into account the other subsystems. Turning Dudley's department into an island of Theory Y in the midst of a sea of Theory X simply will not work. Dudley's way of operating, while perhaps the best way of dealing with change and uncertainty is inconsistent with the larger organization and is eventually rejected. To return to a key characteristic of open systems/contingency theory, organizations are complex systems and changes in one part of the system require taking into consideration the other parts of the system.

6. Summary of the open systems/contingency approach. In summary, one can distinguish between vertical means of dealing with the uncertainty stressed by the classical/scientific management approaches and the horizontal means stressed by the human relations movement. Whether a more traditional, classical approach to the management of people or a more complex, human relations approach is effective depends on the stability and the complexity of the organization's environment. In the latter half of the 20th century and the first decade of the 21st century, all organizations have experienced increasingly complex and changing environments. However, there are still individual differences with some organizations having much more stable and simple environments than others. The approach that management takes to designing an organization and managing the people within the organization depends on the uncertainty imposed by the complexity and stability of the environments.

#### The Modern Era (1990 – now)

Anyone 18 or older is familiar with the major events of this period. While the first two decades after WWII were characterized by U. S. economic and military dominance, unprecedented economic growth and optimism in the future, other events beginning around 1965 and continuing to the present time are reshaping both I/O and thinking about organizations. The "modern era" begins in 1990 when the Cold War ended. The major forces during this time that shaped I/O psychology include global competition, computer technology and the internet, terrorism, and increases in population and resource scarcity.



## Global competition

So far discussion has focused on the dominance of the United States, politically, economically, and militarily. Although the U. S. is still the most powerful nation in the world, it now has competitors. Foreign competition in trade began to make significant inroads into the U. S.'s unchallenged leadership as supplier of the world's manufactured goods. Former vanquished foes in WWII, the Japanese and Germans, are now major economic competitors. China and other nations in the Pacific Rim have emerged as the fastest growing economies in the world. In search of cheaper labor, many U. S. manufacturers have moved their operations overseas resulting in a major decline in employment in the areas of the U. S. such as Pennsylvania, Michigan, Ohio, and Indiana that were the centers for the production of automobiles, steel, and a variety of other goods. In the past corporations around the world were identified with one nation (e.g., U. S. Steel with the U. S., British Petroleum with Great Britain). The economic foundation of U. S. affluence was beginning to erode. The growth in productivity that the U. S. took for granted declined dramatically (Kochan & Barocci, 1985). Most corporations now have a strong international component with operations and employees around the world. Among the implications of the globalization of trade is that I/O psychologists can no longer afford to look at human behavior in the workplace through exclusively North American lenses. I/O psychologists and other social scientists involved in the study of organizations were almost exclusively North American and British prior to the 1980s, but over the last three decades, academic programs in I/O and other organizational studies have emerged in Asia, Europe, and even the Mideast. Also occurring in the last three decades is a large increase in cross-cultural research on all the topics covered in this course.



## Computer technology and the internet

Another remarkable event is the accelerating change in computer technology in the workplace. Computers, which were once incredibly expensive machines occupying entire buildings, became tools accessible to the general population. Almost overnight in the 1980s, the computerized checkout counter became a standard retail store fixture and the computer workstation replaced the typewriter on every secretary's desk. Now workplace

technology includes computer networking, mobile technologies, and virtual reality, to name only three. It is hard to fathom the impact that computer technology has had on organizations and the workplace and even harder to project the future effects.

The ways that organizations and work are designed and managed are driven by the need to process information and make decisions. The classical form of organization was one in which people are arranged in a pyramid with those at the top possessing the most authority and power. Orders and directives flow downward and communications are required to follow chain of command. The more complex the tasks and environments of the organization, the more levels in the hierarchy and the more specialization of the tasks were required to deal with the massive amount of information to process. Those at the bottom of the organization were responsible for day-to-day decisions about small matters, following the rules, procedures, and policies imposed from on high. Exceptions to the routine way of operating that were not covered by existing rules, procedures, and policies were kicked upstairs. This allowed those at the top to deal only with the important matters and avoid an overwhelming load of information and decisions. The fact that there were often many links separating those at the top from those doing the work at the bottom reduced the capacity of the organization to respond quickly to change or to deal with unexpected events. In a simpler time, the hierarchical structure served us well, but the increasing complexity of modern times have forced a move away from a strict hierarchical form of organizational structure toward structures such as the matrix organization of NASA that can provide more effective processing of information. Transportable, affordable computers with massive computing power has allowed those at the operational level to instantaneously communicate with those at all other levels of the organization and to collaborate across vast distances. Take, for example, the development of networking in the military (<http://www.defencetalk.com/drones-to-take-network-integration-evaluation-by-swarm-65538/>). A soldier on the ground in Afghanistan carries a computing device and can feed information to operators in command centers in the United States who launch and control drone weapons. These innovations in computer technology and the networking applications of this technology are having and will have dramatic effects on how leadership, teamwork, personnel selection and training, and a variety of other HRM and OD functions are viewed (e.g., Bias & Bogue, 2015; Lin, 2011; Miles, Snow, Fjeldstad, Miles & Letl, 2010; Thomas, 2014).



## Terrorism

With the end of the cold war, the democratization of the former Soviet Union, and the embrace of capitalism in socialist societies such as China, one might have expected a period of peace and security. However, the threat of nuclear annihilation by the great powers which was dominant in the two decades after WWII was replaced by a new threat...the use of terrorism by small groups with radical agendas. The bombing of the Federal building in Oklahoma City by right wing terrorists in the U. S. and the 9/11 attack by fundamentalist Islamic groups are only two of the many acts of terrorism that have occurred over the last three decades. The attempts of the U. S. and other countries to increase homeland security and to protect against such attacks are having a continuing influence on I/O psychology and the management of organizations. One important function of I/O psychology has always been the reduction of uncertainty associated with the use of people in the workplace. When employers hire people for jobs they are never entirely certain of how the person will perform. Will the hires meet performance standards or will they prove less than adequate? Even more of a concern in many organizations since 9/11 is whether the persons hired are trustworthy and honest individuals or potential threats to the well-being of the organization, customers, and other employees. Since 9/11, I/O psychologists have been called upon to devise assessment tools that can screen out those who might perform terrorist acts and to devise training procedures for the increasing number of employees who are engaged in security roles (e.g., Halbherr, Schwaninger, Budgell & Wales, 2013). Computer technology is now routinely used to monitor the everyday activities of employees and customers. This has raised concerns about privacy and civil rights and research is underway on the impact on employee attitudes (Holland, Cooper & Hecker, 2015). I/O psychologists and other social scientists are beginning to conduct research on the impact of the threat of terrorism on organizations and employees (e.g., Malik, Abdullah & Uli, 2014; Niaawn, Nielsen, Solberg, Hansen & Heir, 2015; Shirom, Toker, Shapira, Berliner & Melamed, 2008). The ultimate impact on the way organizations are structured and managed remains to be seen.

### Major events: Terrorism

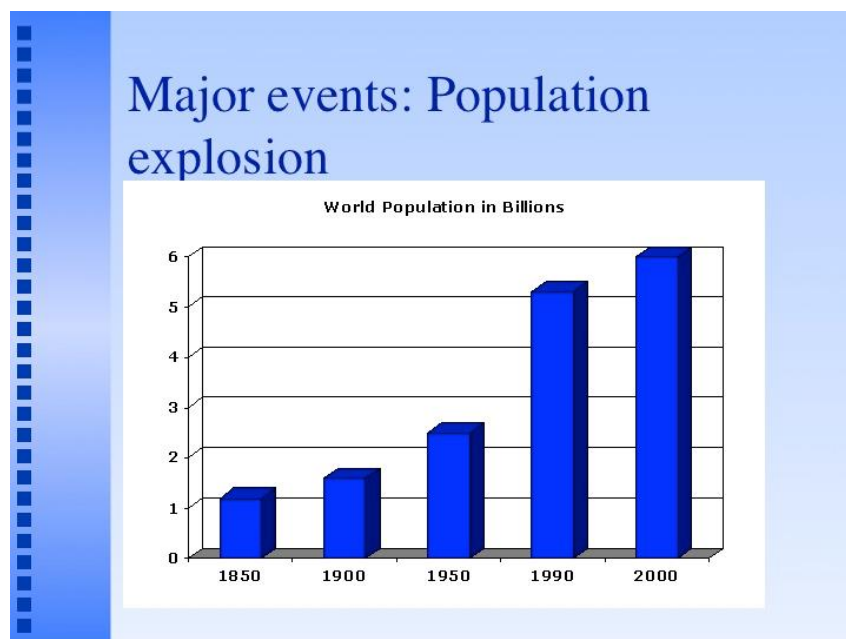


[https://upload.wikimedia.org/wikipedia/commons/6/65/September\\_11\\_Photo\\_Montage.jpg](https://upload.wikimedia.org/wikipedia/commons/6/65/September_11_Photo_Montage.jpg)

## The population explosion, diminishing resources, and climate change

Other important pressures for change were presented as a consequence of diminishing natural resources...especially fossil fuel. An embargo in the Middle East in the 1970s shocked the United States into the realization that it was dependent on foreign governments, many of them unstable at best, for its most vital source of energy. Gasoline shortages, dramatic increase in the price of everything related to energy (gasoline, electricity, heating oil, manufactured products, etc.), and the search for alternative sources of energy became issues that some argued should constitute the highest national priority. Moreover, the energy crisis exacerbated a worsening economic trend that saw inflation growing, productivity declining, national debt soaring, and the balance of payments (value of exports over imports) becoming negative. The U. S. was about to relinquish its position as the world's largest lender nation to become the world's largest debtor nation. The era of prosperity was clearly headed for trouble. Although oil prices dropped in 2015 due to a temporary glut in supply, the long-term prospects are for shortages and an eventual return to the difficulties encountered in the 1970s.

The climate changes created by the growing use of fossil fuels in not only the U. S. but in the developing countries presents still another challenge to organizations as they move forward into the 21st century. Increasingly, individuals and organizations are adopting more environmentally sustainable practices to deal with the decline in resources and to slow the harmful effects that carbon emissions are having on the climate. The effects of climate change are potentially catastrophic and eventually may lead to a host of negative consequences including the extinction of species, water scarcity, shoreline flooding, disease, starvation, and war. I/O psychologists around the world are beginning to contribute in their research and practice to knowledge about how to promote and encourage environmentally practices in the workplace (Aquinas & Glavas, 2013; Dilchert & Ones, 2012; Ones & Dilchert, 2012).



## Major events: Growing scarcity of resources



The changes that are yet to come will undoubtedly lead to new ways of thinking about organizations and how to manage them. These new theories are in the future, but industrial and organizational psychologists are hard at work conducting research and devising interventions to meet these challenges. The open systems/contingency views of organizations are even more relevant in light of events that have occurred since 1990. However, the field of I/O psychology specifically and the organizational sciences more generally are a work in progress and who knows what new paradigms will emerge as academics and practitioners attempt to deal with the changes that are occurring in the workplace.

### Points to ponder

1. What were some of the historical events and societal trends that this chapter has left out? How do you think they might have shaped the way organizations and work were understood and managed?
2. Search the websites for some organizations. Look for examples of the three major theoretical orientations to organizations and the management of people.
3. Provide examples from your own experiences of good and bad bureaucracy. In the good examples how did bureaucracy help or provide benefits? In the bad examples how did bureaucracy go wrong?
4. There is continuing debate on whether a human relations approach to managing people is worthwhile or wrong-headed. What do you think? How can a human relations benefit employees and the organizations in which they work? How can a human relations approach go wrong and perhaps even harm employees?
5. What are the implications of an open-systems/contingency approach for the management of people at work? What are the demands of this approach on managers? What are the implications for the selection and training of managers?
5. Identify some of the changes that you believe will occur in the next 100 years and their impact on how we understand and manage human behavior at work.

### Conclusions

This chapter has reviewed how I/O psychology grew from a handful of academic

scientists at the beginning of the 20<sup>th</sup> century into the international, multifaceted profession it is today. This chapter has examined the stresses and strains that have accompanied this growth. As we have seen I/O psychology did not evolve in isolation. To understand I/O one needs to consider the historical, cultural, and professional contexts in which the field was embedded. The early development of I/O psychology paralleled the emergence of the classical/scientific management and human relations approaches to organizations and management. As discussed in this chapter, modern thinking is dominated by the open-systems view, which recognizes the critical importance of the social-political-cultural-economic-technical environment in which organizations operate. The most notable characteristic of I/O psychology today is the commitment to a scientist/practitioner philosophy that has helped define I/O's niche in the overall picture of modern psychology. The turbulence and change that the 21<sup>st</sup> century promises to bring will undoubtedly lead to further changes in the field, but this core commitment to the scientist/practitioner model is likely to remain as a guiding principle.

## CHAPTER 3: I/O PSYCHOLOGY AS A SCIENCE





## Introduction

In the first chapter, I/O psychology was described as a discipline concerned with the behavior of people in work settings, and the scientific method was described as the means of acquiring knowledge of behavior at work. Most of the knowledge generated and applied by I/O psychologists is based on a philosophy shared by all sciences. The only difference is that the research methods used in I/O psychology are adapted to the special problems inherent in studying human beings. This chapter explores the essential components of the scientific method and its applications to studying human behavior in organizations. Although the readers may or may not ever conduct a study, at some time they will consume research on human psychology in the workplace. They will read articles and watch TV shows that offer advice on how to pick a job, interview, deal with the boss, and in other ways get by in the world of work. They may even encounter one of the growing number of consultants who use the old "science has found" routine to peddle their wares. This chapter will help in distinguishing between truth and the many half-truths and shams by examining the differences between scientific and non-scientific research and the standards against which scientific research is judged.

The importance of the scientific perspective cannot be overstated. For one, the scientific method is the one constant in I/O psychology. As is the case with all areas of science, knowledge of the topic is always changing as new research is conducted, but the science that generates the knowledge remains the same. Moreover, unless one understands the rationale and conventions underlying the scientific approach and the research strategies used by I/O psychologists, one can hardly judge the merit of principles and explanations presented in this text. Adopting a scientific perspective is not an easy undertaking. People often have difficulty accepting scientific explanations for human behavior that are inconsistent with their own intuitions. They are inclined to trust their "gut feelings" over scientific evidence and to react accordingly, often with unhappy results. To benefit from what I/O psychology has to offer in the search for explanations and solutions, one must consider the possibility that intuitions are frequently wrong and must weigh evidence dispassionately. One must, in short, understand the scientific approach. For all these reasons, this is probably the most important chapter in the entire book.

## Distinguishing Science from Non-Science

A basic message of this text is that understanding and predicting human behavior in organizations requires scientific research. It is important to realize, however, that there are many alternative sources of knowledge, such as personal experience, observations of others, authority, logic, intuition, and analogy. To gain some understanding of what the scientific approach to understanding organizations entails, the chapter begins by examining what it is not. To supplement what is said here, take a look at this fairly general discussion of the differences between science and non-science:

<http://www.youtube.com/watch?v=PrII9oErJJg>



## Characteristics of non-scientific knowledge

Perhaps the most common source of knowledge and the most influential is personal experience. Managers acquire a sense of what works and does not work from participating in the real world. There is a long history of corporate leaders who have offered advice on how to best run an organization. Several of these were mentioned in the last chapter (e.g., Henri Fayol, Chester Barnard). More contemporary examples of this genre of executives include John Mackey (Whole Foods), Tony Hsieh (Zappos), Michael Dell (Dell), David Packard (Hewlett Packard), Richard Branson (Virgin Airlines), and Donald Trump (Trump Organization), all of whom have confidently drawn from their experiences to proclaim the right ways to manage.

Reliance on the personal experience of others presents another source of knowledge -- authority. One may accept an individual's opinions as the truth out of fear, love, or respect for that individual, because that individual's advice was followed in the past, or because of that individual's past successes. Knowledge of how organizations are run are also derived from or dictated by religious authorities. Some managers may take the simple Christian dictum "Do unto others as you would have them do unto you" as a principle that guides their daily activities. Others might rely on the teachings of Buddha, Mohammed, Tao, or the Talmud for knowledge of organizations.

Closely related to authority is intuition. Managers often take a course of action because it "feels" right to them. Intuition also can come in the form of mysticism, altered states (drug or naturally induced), religious experiences, or inspiration. In all cases, the person arrives at some "truth" through "gut feelings" rather than through logic or factual information.

Very different from intuition is knowledge that is logically deduced from basic assumptions. Similar to a mathematician who starts with certain axioms and through rules of logic forms deductions, persons may start with stated or unstated assumptions about organizations from which they logically derive what they accept as the truth. For example, a manager may start with a universal belief (Theory X?) that workers desire only money and are lazy. It would logically follow from this assumption that managers should closely supervise workers, that they should motivate them with monetary incentives, and that they should not seek their opinions or ideas.

One can also know knowledge based on analogy such as "A good manager is to an organization" as "A quarterback is to a football team." A perusal of books on organizations and management reveals a plethora of others, including the manager as a Samurai warrior and as a Mafia boss.

Finally, there is the knowledge that comes from the values and norms that members of a society share and that constitute their culture. Members of an organization may come to see those beliefs that they hold in common as fact rather than mere preference. Take, for example, norms for how one should dress. There is no logical reason that an accountant should wear a suit to work as opposed to overalls, but social norms dictate that the former is usually more acceptable. Similarly, what one accepts as self-evident truths about

organizations reflects to a significant degree the accustomed ways of doing things. Differences in social norms are particularly important in comparing different countries. In Japan, for example, the individual is considered more subordinate to the collective effort of the organization than in the United States, where there is a strong belief in individualism. Consequently, the wisdom of using groups and consensus decision-making is more apparent in Japan than in the United States, where distrust in groups and reliance on the lone manager as hero prevails.

Please don't conclude from this discussion that all knowledge based on nonscience is invalid. There is a place for nonscientific approaches, but there is a lot of pseudoscience out there, especially in the pronouncements of so-called experts on how to manage people in the workplace. For an example, check out this link. The "Great Randi" makes a living debunking a variety of hucksters, including the ones illustrated in the video. What he talks about in this video is not uncommon in the selection of employees, believe or not.  
<http://www.youtube.com/watch?v=CUYq4Iu3OqI>

### Characteristics of scientific knowledge

All of the above are common ways in which people seek and acquire knowledge, but what are the defining characteristics of scientific knowledge? Unlike the above sources of knowledge, science is empirical, objective, precise, concerned with understanding general principles, probabilistic, and logical.

Science is empirical. Perhaps the most important attribute of science is that it relies on observation of events rather than relying solely on logic, authority, or intuition. Take for instance the issue of what workers want the most in a job. Rather than assuming or deducing some answer to this question, a scientific approach could be taken by surveying, observing, or in some other way gathering data on employees' needs.





Science is objective. Science does not rely on personal experience or intuition but generates "objective" knowledge. By objective it is meant that different scientists can arrive at the same conclusions using the same methods. One approach to ensuring objectivity is to use standardized methods of measurement such as questionnaires, stopwatches, and other devices that are kept the same across settings and researchers.

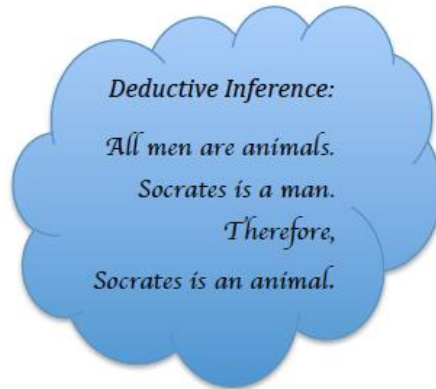


Objectivity doesn't always require special equipment, however. A more basic requirement is that the researcher carefully defines the terms and the procedures used in gathering data. What if higher performance is observed when supervisory styles are supportive and participative? Simply stating what was observed is not enough. Objectivity requires stating the procedural details that allow others to repeat the observations. This could include describing how supervisory style and performance were measured, the type of employees used, sampling procedures, and the statistical techniques that were used. In comparison, intuition and personal experience are often intensely personal and incapable of replication. For instance, Donald Trump and other executives may have profound insights, but their knowledge derives from their unique experiences.

Science is concerned with general understanding. Industrial and organizational psychologists often attempt to understand what accounts for organizational events. Their ultimate concern, however, is not with what caused a specific event at a specific time (e.g., Why did WalMart perform so well last year or why did Fred, a manager at High Tech, Inc, fail in motivating his employees?) as much as the general principles that apply across a wide variety of events (e.g., What are the factors that distinguish consistently successful firms from unsuccessful firms and successful managers from unsuccessful managers?).



Science is logical. Scientists are logical in at least two senses. First, they derive hypotheses from general principles using deductive logic. They then test these hypotheses through research and draw inferences using inductive logic. They use the tools of mathematics and logic, but unlike pure rationalism, scientists always go out into the world to observe and test the hypotheses that they logically derive



Science is precise. Industrial and organizational psychologists attempt to define their terms and collect their data in as precise a manner as possible. Consequently, measurement is a particularly important activity performed by I/O psychologists. It is not enough to simply distinguish satisfied from dissatisfied employees, or good performers from bad. I/O psychologists develop measures that can distinguish with precision among degrees of satisfaction and performance.

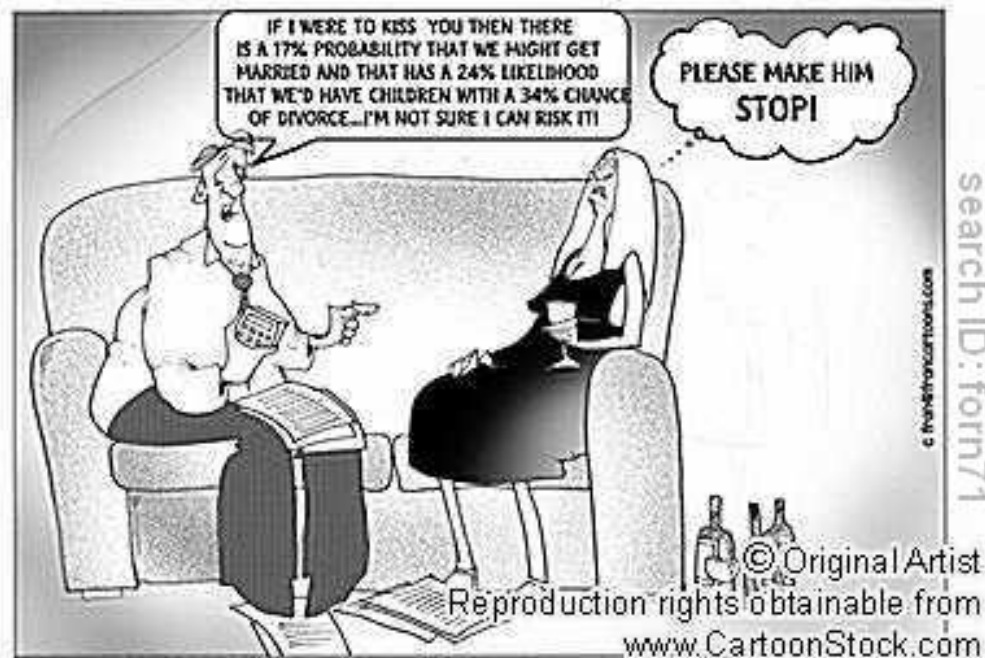


Science is probabilistic. A hallmark of science is that it never really arrives at truth with total confidence. In testing hypotheses, scientists never prove, but only fail to disprove. This is perhaps the aspect of science that is most frustrating to the nonscientists and to managers in particular. Managers often want unequivocal answers, and they want them fast. The scientist is prone to state conclusions in terms of probabilities, conditions, and hypotheses. Scientists of all types, including I/O psychologists can sound like Tevye in the play Fiddler on the Roof who is forever agonizing over decisions as he recites "On



the other hand." <http://www.youtube.com/watch?v=zm6KapIDLvg>

Similar to Tevye, those who are responsible for actually managing organizations and must live with the decisions, have a hard time with this aspect of science. They want answers, not probabilities. Managers seek "one-handed" psychologists, who rather than equivocating will declare what is universally and forever true. In many of the debates on the issues of our day (e.g., climate change), the public has a difficult time accepting the probabilistic nature of science. Yet, by demanding that science identify what is forever true they are also stating that they do not need research and that the question is closed. Such an approach is in the realm of religion and faith, but it is not science. This approach also undercuts science and prevents the accumulation of scientific knowledge and ultimately the most effective applications of that knowledge. There is a basic divide between science and practice that is hard to close because of the natural desire for certainty. A good scientist learns to live with and even enjoy ambiguity. I/O psychologists are no different than most good scientists who realize that science is a never-ending process and that what is accepted today as the truth may be questioned tomorrow. In this sense, science is much different than other sources of knowledge that are too often marked by dogma, rigidity, and a complete unwillingness to revise in the face of facts.



## The Scientific Method

In attempting to acquire knowledge concerning behavior in the workplace, I/O psychologists use the scientific method. The scientific method is a process that starts with research questions and then recycles back to additional research based on the findings:

Step 1. Start with a research question, e.g., What is the relationship of job satisfaction and performance?

Step 2: Examine theory relevant to this question, e.g., Herzberg's two-factor theory of motivation (we'll discuss this in the motivation chapter).

Step 3. From the theory, derive a hypothesis in which variables are defined and the expected relationship stated, e.g., Workers who report higher job satisfaction are more productive than those reporting lower job satisfaction.

Step 4. Operationalize the variables in the hypothesis by making them concrete and measurable and/or capable of being manipulated in the lab, e.g., one could measure job satisfaction using the Minnesota Satisfaction Questionnaire (MSQ) or performance by recording the number of sales made by salespersons. One manipulates leadership style by having leaders follow one of two scripts. The leader either allows subordinates to participate in decisions or acts as an autocrat and tells subordinates what to do and how to do it.

Step 5. Collect data to test the hypothesis, e.g., A sample of salespeople are given a questionnaire to measure their job satisfaction. The company provides monthly sales records for each employee.

Step 6. Analyze the data, e.g., submit the data to a correlational analysis using SPSS... a statistical program, to compute the correlation between job satisfaction and performance.

Step 7. Draw a conclusion about whether our hypothesis is supported or not, e.g., examine the probability of finding this level of correlation in a sample drawn from a population in which there is no correlation. This is the null hypothesis. Assume that a significance level of .05 is taken as the criterion for rejecting or failing to reject the null hypothesis. If the probability of finding the correlation in a sample when the population (or true) correlation is zero is greater than .05, one fails to reject the null hypothesis and concludes that the correlation is too small to be of much statistical significance. If the probability of finding the correlation in a sample when the population (or true) correlation is zero is less than .05, one can reject the null hypothesis and concludes that the correlation is large enough to justify serious consideration. Note that although a  $p < .05$  is the traditional value chosen in testing statistical significance, this is an arbitrary value. For a discussion of p values, go to:

<http://www.youtube.com/watch?v=HTZ8YKgD0MI>

Step 8. Reexamine our theory in light of the test of the hypothesis, possibly revise, and continue with more research.

For an overview of the scientific method as used in psychology, take a look at <http://www.youtube.com/watch?v=SyWaxwGSWmQ>

## The goals of scientific research

The three basic goals of science are description, prediction, and explanation (Kaplan, 1964). The following sections consider how I/O psychologists attempt to achieve each of these goals. Several important terms that are central to scientific research are first defined, followed by descriptions of some of the statistical tools that are used in the practice of science in I/O.

## Some basic terms

I/O psychologists, like all scientists, operate at different levels of abstraction (Kerlinger, 1973). At the most concrete level they observe and record the events of organizational life. For example, if measuring the job satisfaction of an employee, one might give that employee a 1 – 7-point scale and have that person indicate on the scale just how happy they are with the job she occupies. The employee answers with a 6, which on the scale is at the high (satisfied) end of the scale. This is the most concrete level and consists of an actual observation of an event. Scientists seldom are content to stay with only observable data, however, and invariably evoke more abstract notions such as variables, constructs, and theories in their attempt to describe, predict, and explain human behavior in organizations. In our example, the number chosen on a job satisfaction scale is an indicator of a more abstract concept or construct, job satisfaction.

A variable is an attribute or property that can assume different numerical values. In some cases, the variables are inherently quantitative in that numbers can be assigned to represent different levels or magnitudes. For instance, the number of correct responses on a vocabulary test indicates different levels of verbal ability or responses to a job satisfaction scale indicate degrees of satisfaction. Other variables such as gender, race, or social class are inherently qualitative in that there is no meaningful way to distinguish among different magnitudes or levels of the variable. One could assign, even to these variables, numerical values for the purposes of research (e.g., male = 1, female = 2), although the values in these cases reflect presence or absence of a property rather than "low" or "high." In other words, as will be discussed later in this chapter, the variable is measured on a nominal scale of measurement.

A construct is a particular type of variable that is crucial to the explanation of human behavior in organizations and is inferred from observations of related events. According to Binning and Barrett (1989, p. 479), "Psychological constructs are labels for clusters of co-varying behaviors. In this way, a virtually infinite number of behaviors is reduced to a system of fewer labels, which simplifies and economizes the exchange of information and facilitates the process of discovering behavioral regularities." The reader will encounter a variety of psychological constructs in future chapters, and in each case the construct is associated with a domain of behaviors that the scientist believes are interrelated. Thus, quantitative ability is used to summarize and explain the interrelationships among tests of addition, subtraction, multiplication, and division. Verbal ability is used to summarize and explain interrelationships among tests of reading, spelling, and vocabulary. Job performance is used to summarize and explain



interrelationships among individual aspects of employee performance (e.g., quantity, quality, creativity). Job satisfaction is used to summarize and explain the interrelationships among expressed attitudes toward supervision, compensation, the work itself, coworkers, and other facets of the work.

A theory is a set of constructs and the interrelationships assumed to exist among these constructs (Selltitz, Wrightsman, & Cook, 1976, p. 16). As an example, consider a theory in which employees with high levels of verbal and quantitative ability are hypothesized to perform at higher levels on the job than employees with low levels of these abilities. The theory in this case is defined by the set of constructs (verbal ability, quantitative ability, job performance) and their interrelationships (positive relationships between the abilities and performance). Subsequent chapters will describe many of the theories that I/O psychologists have used to describe behavior in organizations. As will be seen, theory is often the source of the questions that guide research. In the deductive approach, the researcher starts with a theory, deduces from this theory a specific statement of how variables related to the constructs are related, and then gathers data to test the hypothesized relationships. Whether the theory is seen as accurate or not depends on whether the statements deduced from the theory are supported by the data. An opposite strategy of research is the so-called inductive approach. The researcher starts by gathering data and then derives a theory from the observed relationships. However, even in the inductive approach the researcher is likely to have some prior notion of what constructs are important and their possible relationships. Whichever strategy is adopted, the ultimate objective of research in I/O psychology is to arrive at theory that can be used to describe, explain, and predict behavior.

For an online tutorial on hypotheses, theories, variables and constructs go to the following links. Realize that these are based on another text...so when they refer to chapter 3, it's not chapter 3 in this text).

<http://www.youtube.com/watch?v=L4ZOtY9g3o8>

<http://www.youtube.com/watch?v=6DDMNUJUmPk>

## Statistics

Although description, prediction, and explanation are goals that differ in important respects, all three involve gathering data on relationships among variables. Statistics are a vital tool used in summarizing these relationships and in estimating the odds that they reflect something more than mere chance. Obviously it is impossible to cover in this short chapter the entire field of statistics. Nevertheless, it is important to review a few of the basic statistical methods that researchers use.

## Distributions.

Inferential and descriptive statistics are based on assumptions about how the values obtained for a variable are distributed. An examination of how things are distributed in the world reveals an amazing symmetry for almost everything. For example, the seasons change predictably, and the right side of the body looks very similar to the left side.

Statistical principles are based on the assumption that this regularity holds for many different variables. Take, for instance, weight and height. Some people weigh very little, such as a little baby, and others weigh a lot, such as fat Uncle Henry. Likewise, pygmies are very short and professional basketball players are very tall. Most people, however, fall somewhere between these two extremes in height and weight. If a large number of people were asked their weight and the number of people at different weights were graphed, the frequency distribution would look resemble a bell curve (see figure 3.1). This is called the normal distribution and is the distribution that is assumed for most statistical procedures. As figure 3.1 illustrates, most people fall in the large "hump" in the middle of the distribution with relatively few people found in the tails of the distribution.

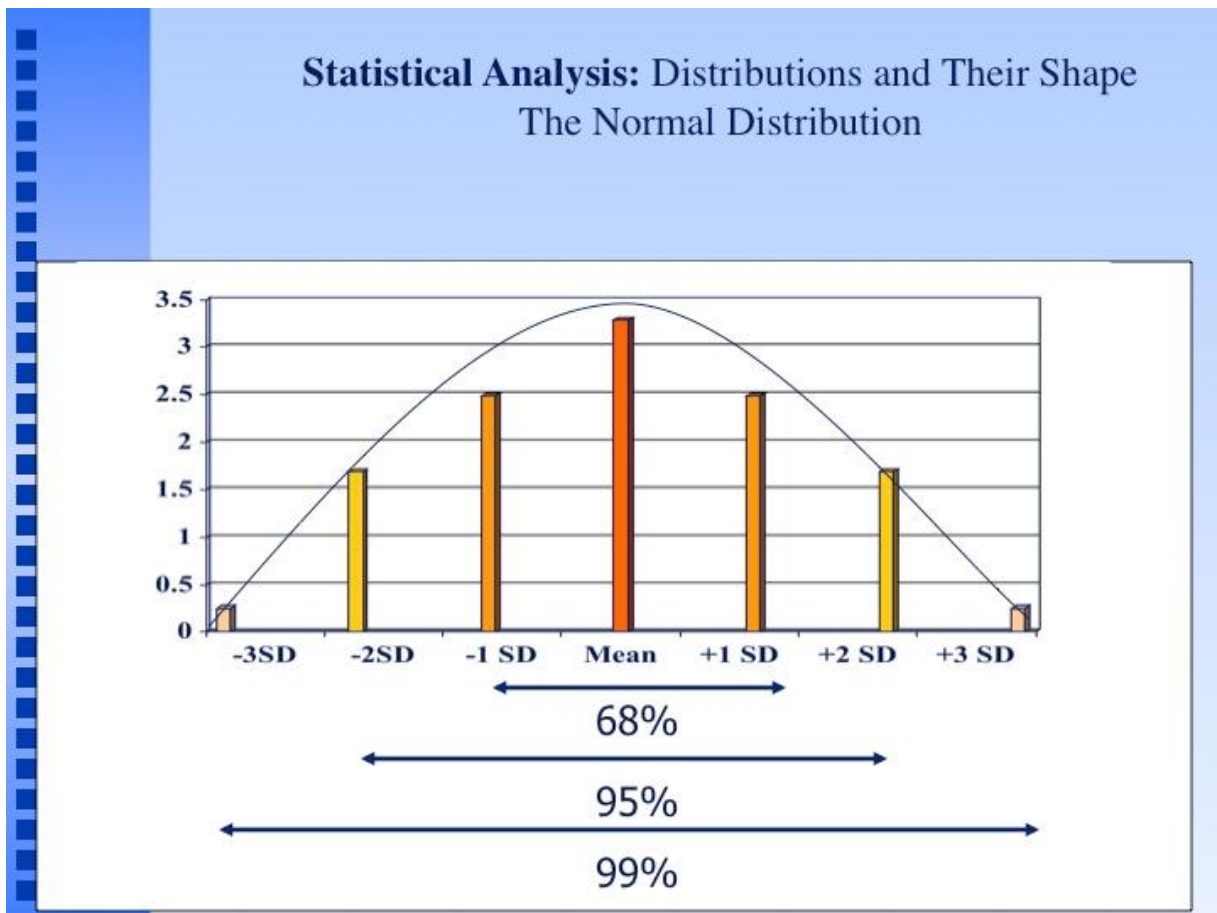


Figure 3.1: Areas under the Normal Distribution

Many of the variables that are the focus of research in I/O psychology (e.g., intelligence test scores) are distributed in this manner, but it is not uncommon for distributions of variables to deviate from normality in the manner illustrated in figure 3.2. For instance, the salaries of employees, the rate at which employees in different organizations leave the firm (turnover), and the number of thefts committed by each employee are more likely to take the form of positively skewed distributions in which there are few high values on the variable and many more low values. On the other hand, the distribution of supervisor

ratings of employee performance is often negatively skewed in that supervisors give relatively few very low ratings and many more moderate to high ratings.

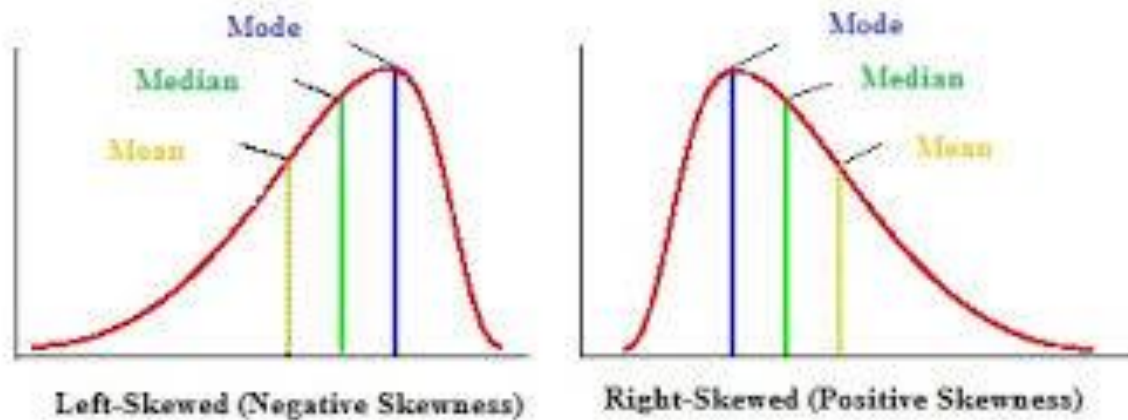


Figure 3.2: Positive and Negative Skews

Descriptive statistics.

Statisticians have been developed several numerical indices to describe frequency distributions in terms of their central tendency and variability. These include the mean, median, mode, variance, and standard deviation. Correlation is a statistic used to describe the relationships among variables. For some Khan academy short lectures on descriptive statistics go to the following links:

[https://www.khanacademy.org/math/probability/descriptive-statistics/central\\_tendency/v/statistics-intro--mean--median-and-mode](https://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/statistics-intro--mean--median-and-mode)

[https://www.khanacademy.org/math/probability/descriptive-statistics/central\\_tendency/v/exploring-mean-and-median-module](https://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/exploring-mean-and-median-module)

[https://www.khanacademy.org/math/probability/descriptive-statistics/central\\_tendency/v/statistics--sample-vs--population-mean](https://www.khanacademy.org/math/probability/descriptive-statistics/central_tendency/v/statistics--sample-vs--population-mean)

1. Descriptive measures of central tendency. The mean is the arithmetic average of all scores in a frequency distribution, whereas the median is the middle score, indicating the point at which 50% are below that value and 50% are above that value. The mode is simply the most frequently occurring score. The mean, median, and mode are collectively referred to as measures of central tendency. In a normal distribution, the mean, median and mode have the same value. In skewed distributions, the extreme scores pull the mean away from the center of the distribution, and the mean is no longer a good measure of central tendency (see figures 3.3). Consequently, the median is a better measure of central tendency for skewed distributions. The mode is much less frequently used than the median and mean but is a more meaningful description of central tendency in cases where

the variable is qualitative in nature (e.g., religious preference, race, gender). Now go to the following link in the Rice Virtual Statistics Lab and review a description of the mean, median, and mode. The reader may wish to tackle the exercises within the link.

[http://onlinestatbook.com/2/summarizing\\_distributions/measures.html](http://onlinestatbook.com/2/summarizing_distributions/measures.html)

2. Descriptive measures of variability. Among the numerical indices that are used to describe the spread of values in a distribution are the range, variance, and standard deviation. The simplest of these is the range. This is computed by taking the difference between the smallest value and the largest value in the distribution. More informative is the variance (symbolized as the Greek letter sigma,  $\sigma^2$  (i.e., sigma squared). This measures the extent that values deviate from the mean of the distribution and is calculated using the following formula:

$$\sigma^2 = \frac{1}{N} \sum_{i=1}^N (x_i - \mu)^2$$

where  $\sum$  indicates summation,  $X_i$  stands for the values found for the variable in the population of data,  $N$  is the number of  $X_i$ s observed in the population, and  $\mu$  (symbolized with the Greek letter Mu or  $\mu$ ) is the mean of the  $X_i$ s in the population. The square root of the variance is the standard deviation (symbolized as  $\sigma$  or the Greek letter sigma) and is a more interpretable measure of variability.

Below is an example of the computation of the variance and the standard deviation:

Given ten data points in the population:

$x_i - 10 = 5, 10, 15, 20, 25, 30, 35, 40, 45, 50$ .

Here's how one would calculate the standard deviation.

Step 1:

The first step is to compute the mean of the population ( $\mu$ ):

Mean of the population =  $(5+10+15+20+25+30+35+40+45+50)$  divided by 10  
=  $275 / 10$   
= 27.5

Step 2:

The deviations of each value from the mean, the squared deviations, and the sum of the squared deviates are calculated.

Step 3:

The total found in the last column of the table and  $n = 10$  are plugged into the formula for variance of the population,

$\sigma^2 = \sum(x_i - \mu)$  divided by  $N$   
=  $2062.5 / 10$   
= 206.25

And the standard deviation ( $\sigma$ ) of the population = square root of 206.25 = 14.36

X	Deviations ( $\mu - x$ )	Squared Deviations ( $\mu - x$ ) <sup>2</sup>
5	-22.5	506.25
10	-17.5	306.25
15	-12.5	156.25
20	-7.5	56.25
25	-2.5	6.25
30	2.5	6.25
35	7.5	56.25
40	12.5	156.25
45	17.5	306.25
50	22.5	506.25
Total		2062.50

The examples assume that the ten values constitute the entire population of values. If the ten data points represent a sample from a larger population, the variance and standard deviation are computed as:

$$\begin{aligned}
 S^2 &= \sum(x_i - \text{Mean of the sample})^2 \text{ divided by } (N - 1) \\
 &= 2062.5 / 9 \\
 &= 229.17
 \end{aligned}$$

And SD = square root of 229.17, or 15.1384

Another illustration of variances in several distributions is provided in figure 3.4. Distribution A has less variance around the mean, than B, which, in turn, has less variance than C.

For a simple discussion and illustration of the standard deviation take a look at:

<http://www.youtube.com/watch?v=hUaua15QzK4>

For Khan academy lectures on the variance of the population and variance of a sample go to these links:

<https://www.khanacademy.org/math/probability/descriptive-statistics/old-stats-videos/v/statistics--variance-of-a-population>

<https://www.khanacademy.org/math/probability/descriptive-statistics/old-stats-videos/v/statistics--sample-variance>

<http://www.youtube.com/watch?v=E4HAYd0QnRc>

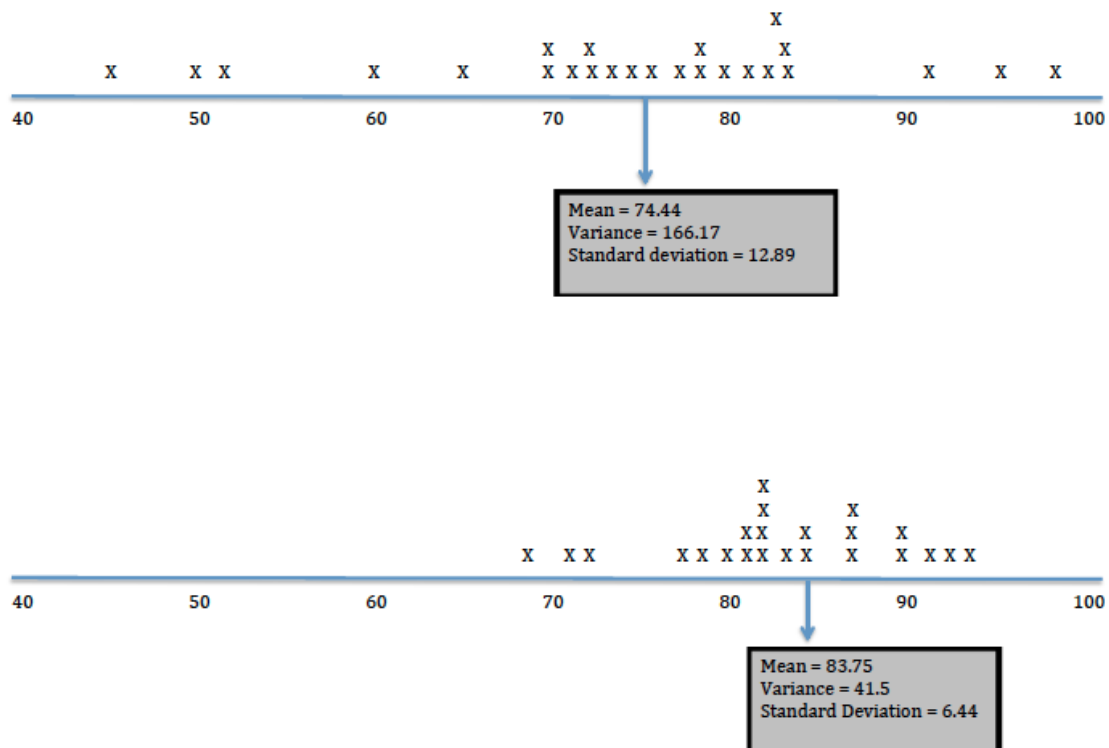


Figure 3.3: Comparisons of Means, Standard Deviations, and Variance in Two Distributions

Cognitive ability in general population	Cognitive ability scores of college graduates
45	69
50	71
52	73
60	78
65	79
70	80
70	82
71	82
72	83
72	83
73	83
74	83
75	84
78	85
79	85
79	88
80	88
81	88
82	90
83	90
83	90
83	91
91	92
95	93
98	69

Table 3.1: Hypothetical Data Used in Figure 3.3

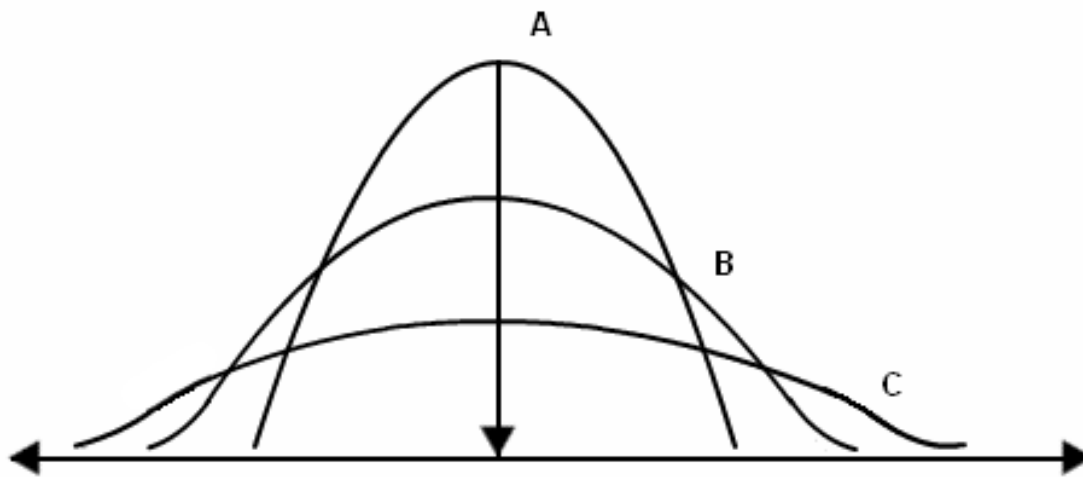


Figure 3.4: Comparisons of Three Distributions having the Same Mean but Different Variances around the Mean

3. Computing standard scores. Using the standard deviation, researchers compute standard scores to translate raw scores on a variable into standard deviation units. This allows comparisons across variables having different distributions. One type of standard score is the z score. This is computed by taking the difference between an individual's score on a variable and the mean score for that variable and then dividing by the standard deviation:

#### Calculating the Standard Score (Z-Score)

$$\text{Standard Score, } z = \frac{X - \mu}{\sigma}$$

##### TERMS:

$\mu$  = mean (pronounced 'mu')

$X$  = score

$\sigma$  = standard deviation (pronounced 'sigma')

For example, assume that a comparison of how Ralph did on the first test in this course to how he did on the second test or how Ralph did on each test compared to Fred. One could simply compare the raw scores on the tests but comparisons of raw scores are difficult to interpret without taking into account the distribution of scores and where each student stands relative to other students in the class. By dividing the difference between each test

score and the mean of the tests and then dividing by the standard deviation one is converting the raw score into standard deviation units. The Z-score indicates how many standard deviations the student is above or below the mean. The Z-score indicates not only how well the student performed on a test but also allows a determination of the proportion of those taking the test that scored lower and higher than the student. Z-scores also allow a clearer interpretation of differences among scores on tests.

Let's say that on test 1, Ralph made a 90, Fred scored an 84, and the mean for the whole class was 85. On test 2, Ralph made a 96, Fred scored 85 and the mean for the class was 90. So how did Ralph do relative to Fred? And how did Ralph do relative to the mean of the class? It all depends on the standard deviation of the test scores on each test. Assume that the standard deviation on test 1 was 10 and the standard deviation on test 2 was 30. On test 1, the z score for Ralph is  $+1.5$  and the z score for Fred is  $-1.0$ . On test 2, the z score for Ralph is  $+2.0$  and the z score for Fred is  $-1.6$ . The absolute difference between Ralph's score on test 1 and the class average was only slightly smaller ( $+5$ ) than the difference between his score on test 2 and the class average ( $+6$ ). However, Ralph did much better relative to the class average on test 1 than test 2 ( $.5$  vs.  $.2$ ) when the differences were expressed in standard deviation units. Although the absolute difference in scores between Ralph and Fred on test 1 was smaller ( $6$ ) than on test 2 ( $11$ ), the difference in z scores between them on test 1 was actually larger ( $.6$ ) than on test 2 ( $.36$ ). Many of the major aptitude and achievement tests (SATs, ACTs, GREs, MCATs, LSATs) are expressed in terms of standardized scores to provide more interpretable scores. For further discussion of z scores and the normal distribution go to:

[http://www.khanacademy.org/math/probability/statistics-inferential/normal\\_distribution/v/ck12-org-normal-distribution-problems--z-score](http://www.khanacademy.org/math/probability/statistics-inferential/normal_distribution/v/ck12-org-normal-distribution-problems--z-score)

4. Correlation. Researchers are usually interested in describing and drawing inferences for the relationships among two or more variables. First, consider bivariate correlations as described in the bivariate frequency distributions in the figures below. The most frequently used statistic in describing relationships such as those presented in these figures is the bivariate correlation coefficient. Several potential relationships can exist between two variables. Some variables are positively related in that as values for one increase, the values on the other variable also increase in magnitude. An example is the relation between cognitive ability and job performance. As ability increases, performance tends to increase. Other sets of measurements are negatively related to each other. That is, as one set of measurements increases, the other set decreases. Ratings of job-related stress and job satisfaction are usually negatively related. As people report higher stress ratings, they also report lower satisfaction ratings; conversely, as people report lower stress ratings, they also report higher satisfaction ratings. Still other variables have little or no relationship in that there is no systematic tendency for one to increase or decrease with changes in the other.



Hours spent partying per week	Hour spent studying per week	Shoe Size	Grade Point Average (GPA)
10	40	6	4
8	35	8	3.5
5	33	9	3.1
14	29	12	2.9
13	15	11.5	2.4
20	18	12	2.1
18	20	8	2.2
20	29	10	2.8
20	29	5	2.9
17	25	7	2.8
5	50	12	3.8
2	10	7	2.9
23	18	7	2.5
7	45	8	3.4
6	40	12	3.9
5	37	11	3.5
7	41	7	3.4
8	39	9	3.3
5	38	7	3.1
25	10	10	1.9
15	9	7	2.9
4	60	11	3.5
2	30	9	3.2

Table 3.2: Hypothetical Data Used in Calculations of Correlations in Figures 3.5, 3.6, and 3.7.

To illustrate imagine a study attempting to identify the variables that predict the grade point averages (GPA) of students at a university. The criterion variable in this case is GPA and thinking about this issue leads the researcher to three possible predictors: shoe size, hours spent studying each week, and hours spent partying. Twenty-five students are surveyed about their GPA, shoe size, hours spent partying, and hours spent studying. The data in table 3.2 describe the findings (these are purely hypothetical!).

The correlations are calculated between each of the predictor variables (hours partying, hours studying, and shoe size) and GPA. Each of the correlations is reported in figures 3.5 – 3.7. Shoe size has virtually no relation to GPA in the scatterplot in figure 3.5 and the correlation of  $-.006$ . The line drawn through the scatterplot is the line that best fits the scatterplot. As is the case whenever the correlation is close to zero, the best prediction of

GPA from any of the shoe sizes is the overall average of the GPA's. Shoe size, not surprisingly, is useless as a predictor of grades.

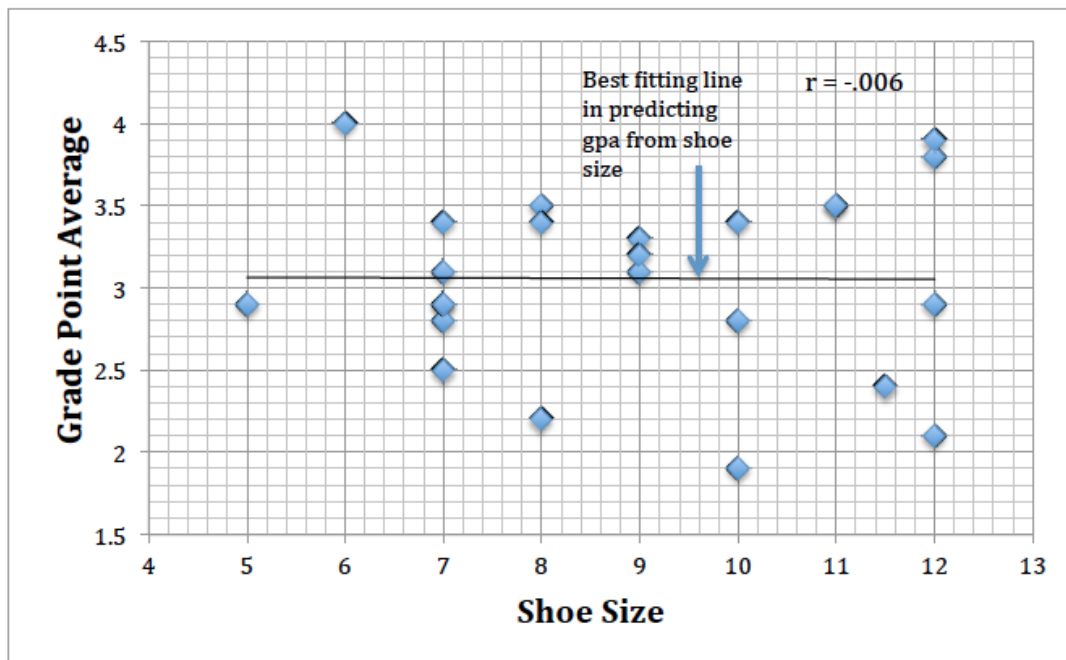


Figure 3.5: Example of a Zero Correlation

Hours spent partying and hours spent studying are both related to GPA, but the nature of the relation differs for the two variables. Hours spent studying is positively related to GPA with a correlation of .779. As the number of hours spent increases, the GPA also increases. By contrast, hours spent partying is negatively related to GPA with a correlation of  $-.742$ . The more hours spent partying, the lower the GPA of the student.

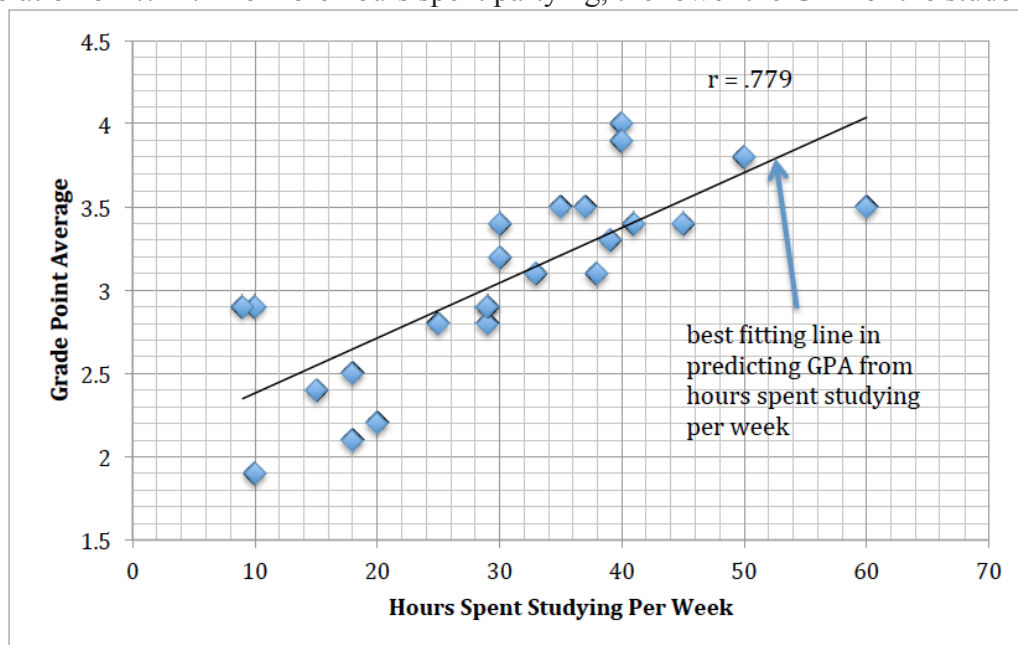


Figure 3.6: Example of a Positive Correlation

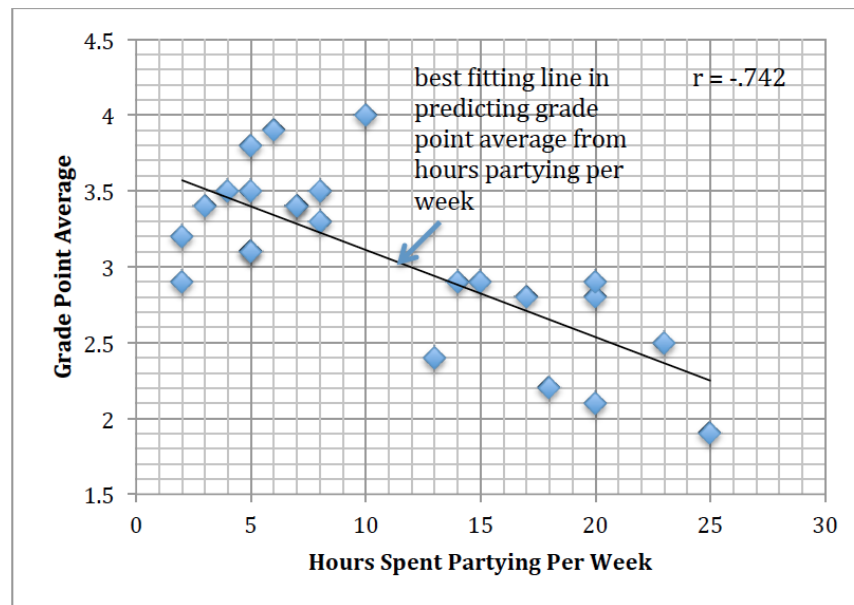


Figure 3.7: Example of a Negative Correlation

To summarize some of the characteristics of a correlation:

1. Statistic that describes the relationship between two variables.
2. Also called the Pearson Product-Moment correlation coefficient.
3. The number that represents a correlation is the correlation coefficient.
4. The correlation coefficient ranges between +1.00 and - 1.00.
5. In a positive correlation, one variable increases as the other increases and decreases as the other decreases.
6. A negative correlation is an inverse relationship in which as one variable increases, the other decreases, and vice versa.
7. A correlation of 0 reflects no relationship between two variables.
8. A correlation does not necessarily indicate causality between the two variables.
9. The correlation coefficient is basically a standard score in which the covariation between two variables is expressed in standard deviation units.
10. The typical correlation found in psychological research (and in other areas of research) is in the -.30s to +.30s. Although far from perfect relationships, correlations of this magnitude can reflect important relationships.

For a tutorial on the correlation coefficient go to:

<http://www.youtube.com/watch?v=BXXtkYQqAfM>

It is useful to summarize the strength and direction of relationships such as those depicted in the figures with single numbers. The Pearson Product-Moment correlation coefficient (denoted with "r") is such a number and provides both the direction (positive or negative) and magnitude (weak, moderate, or strong) of the relationship between two sets of measurements. This formula for computing this coefficient is found below

$$r_{xy} = \frac{\sum x_i y_i - n \bar{x} \bar{y}}{(n-1) s_x s_y} = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{\sqrt{n \sum x_i^2 - (\sum x_i)^2} \sqrt{n \sum y_i^2 - (\sum y_i)^2}}$$

where  $r$  is the correlation coefficient,  $\sum$  indicates summation, the  $X$  and  $Y$  stand for the values found for two variables, the  $\bar{X}$  and  $\bar{Y}$  are the means of the  $X$ s and  $Y$ s,  $n$  is the size of the sample taken of the  $X$  and  $Y$  values, and the  $S_x$  is the standard deviation of the  $x$ 's and  $S_y$  is the standard deviation of the  $y$ 's for a sample drawn from a larger population. The purpose of a correlation is to determine the direction and strength of the association of two sets of measurements or variables. The coefficient ranges from  $-1$  to  $+1$ ; these extreme values indicate perfect (very high) negative and positive relationships, respectively. As the value of the coefficient converges toward zero from either direction, the coefficient becomes weaker in magnitude. For example,  $r = -.30$  or  $+.40$  are both weaker in magnitude than  $r = 1.0$  or  $+1.0$ . A correlation of zero indicates a complete absence of a relationship. For the variables of interest to I/O psychologists, perfect correlations are rarely found while correlations between  $+.3$  and  $-.3$  are frequently reported. The Pearson Product-Moment coefficient can only assess linear relationships, not nonlinear relationships. An example of a nonlinear relationship is if the  $Y$  variable increases with increases in the  $X$  variable up to moderate levels of  $X$  and then decreases at the higher values of the  $X$  variable. In such cases, other computational techniques are used to calculate the degree of nonlinear relationship between the two variables.

For a short video that describes the computation of the correlation coefficient check out:

<http://www.youtube.com/watch?v=pOKWxNTterg>

In cases where I/O psychologists are interested in describing the relationship between more than two variables they must use multivariate statistical methods. The most common situation that is encountered is where there is interest in the relationship between two or more predictor variables and some criterion variable. For instance, one might want to know the relationship of a battery of two tests with a criterion measure of performance on the job. One could in this case compute a multiple correlation. This is a statistic indicating the combined relationship of the predictors with the criterion.

How does one judge the strength of a correlation coefficient? Theoretically a bivariate correlation coefficient can range from  $+1.00$  to  $-1.00$ . What size correlation is required to conclude that there is a strong, moderate, or small relation? In a much cited discussion, Cohen (1992) concluded that a small correlation is  $.10$  or lower, a moderate correlation is between  $.10$  and  $.30$ , and a correlation of  $.30$  or larger reflects a large effect. but in practice the correlations found in research are typically in the  $+.40$  to  $-.40$  range.

There are critics of these criteria (Bosco, Aguinis, Singh, Field & Pierce, 2015; Rosenthal & Rubin, 1982). Rather than imposing absolute criteria for what is large, medium, or small, a more useful and accurate approach is to assess the size of a correlation coefficient in the context of the correlation coefficients typically found in research on a

topic. Bosco, et al (2015) examined 147,328 correlation coefficients published in two major I/O journals and established benchmarks for assessing the size of correlations across several areas of research in I/O. The correlations reviewed were for the variables listed in table 3.3.

Variable Type	Description
People attitudes	Supervisor satisfaction, coworker satisfaction, leader-member exchange (LMX)
Job attitudes	Job satisfaction, autonomy perceptions, pay satisfaction
Organization attitudes	Organizational commitment, perceived organizational support, procedural justice
Intentions	Turnover intentions, intent to accept a job offer, intent to participate in development
Behavior	Performance, absenteeism, turnover
Performance	In-role performance, extra-role performance, training performance
KSAs	Job knowledge, decision-making skills, general mental ability
Psychological characteristics	Traits (e.g., conscientiousness, core self-evaluation) and states (e.g., stress, burnout)
Objective person characteristics	Age, gender tenure
Movement	Voluntary turnover, job choice, involuntary turnover

Table 3.3: Variables Included in the Bosco, et al (2015) Meta-Analysis

The results of the meta-analysis are summarized in table 3.4. Across all variables, the median correlation coefficient was .16. In other words, 50% of the correlations were below .16 and the remaining 50% were .16 or higher. Only 20% were .36 or larger. The size of the correlation varies considerably across topics. In studies examining the correlations between attitudes, a median correlation of .28 was found. The correlation between objective characteristics of people and movement (i.e., turnover, job choice) was only .07. The median correlation of knowledge, skills and abilities (e.g., general mental ability) and performance was .21.

As readers progress through the various topics in this text, they will want to refer back to table 3.4 in attempting to assess how the size of the correlations reported compare to what is typically found. One should not necessarily recalibrate a correlation and declare it large just because it is above the median of the correlations reported in table 3.4. One could just as easily conclude that the entire set of effect sizes in these areas of I/O are moderate to small. This is a sad and discouraging conclusion that would cast doubt on the entire field. The authors wisely caution against this conclusion.

It is dangerous to assume that small correlations are necessarily unimportant or that large correlations are necessarily important. A small correlation may indicate an effect that while tiny at one point in time can escalate over time. Job dissatisfaction and turnover tends to be only .13 judging by the median in table 3.4. Yet, dissatisfaction with job could put in motion ruminations about the job that eventually have much larger effects on a variety of behaviors including withdrawal. Small effects can serve as a piece of the puzzle and while small in and of itself, can combine with other variables and have much larger effects. The correlation between biases against a group (e.g., minorities) and evaluation of the willingness to hire them is typically small. But in choosing among

applicants for a job where there are a lot of applicants and very few positions, a very small correlation could yield a stronger bias in the actual choice. The message is that one should not necessarily reject a finding because of a small correlation. Indeed, a very large correlation (e.g.,  $r = .80$  or higher) is probably suspect. It probably either reflects an obvious and uninteresting relation or is the consequence of biases such as common method bias.

One should not impose on a given finding the label of small, moderate, or large based on an arbitrary set of criteria. Effects need to be evaluated in the context of typical findings on a topic, practical issues, the theory surrounding the effects, and factors associated with an area of research that might prevent an accurate estimation of effects (e.g., the quality of measures that are available). In short, it is a judgment call. After taking into account all these considerations, it is still possible to arrive at the conclusion that there is a weak relation between variables. Sometimes a small effect is just that... a small effect.

			Effect Size Distribution Percentiles		
Relation Type	k	N	20 <sup>th</sup>	50 <sup>th</sup>	80 <sup>th</sup>
All effects	147,328	225	.05	.16	.36
Movement with objective person characteristics	461	293	.02	.07	.16
Performance with objective person characteristics	1,395	200	.03	.09	.20
Movement with psychological characteristics	288	216	.04	.11	.23
Movement with attitudes	866	309	.05	.14	.30
Attitudes with behaviors	7,958	220	.06	.16	.33
Performance with psychological characteristics	3,135	158	.06	.16	.31
Performance with attitudes	3,224	190	.07	.17	.36
Intentions with behaviors	535	233	.07	.19	.33
Performance with knowledge, skills, abilities	1,385	202	.08	.21	.40
Attitudes with intentions	1,717	237	.12	.27	.47
Attitudes with attitudes	14,493	202	.10	.28	.50

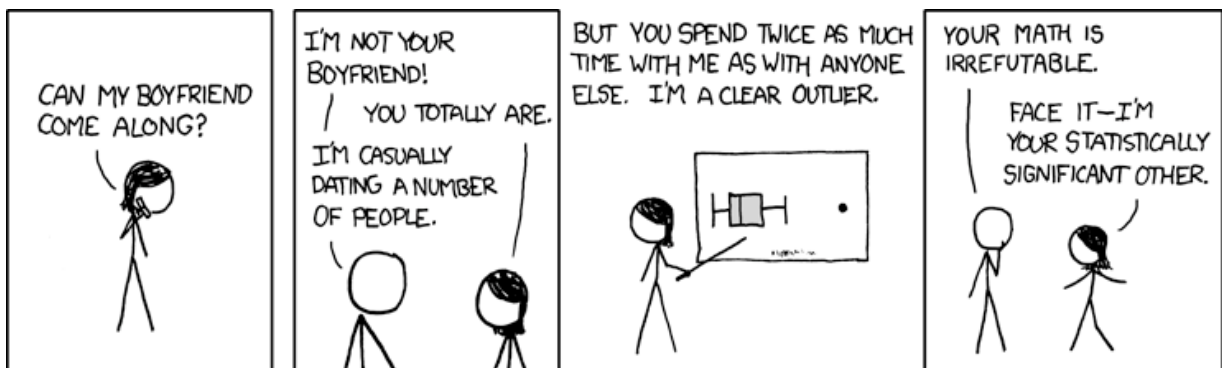
k = number of correlations; N = median sample size; 20<sup>th</sup> = 20 percent of correlations are lower than this value; 50<sup>th</sup> = 50 percent of correlations are lower than this value; 80<sup>th</sup> = 80 percent of correlations are lower than this value;

Table 3.4: Percentile Distribution for Correlations between Different Types of Variables in Bosco et al (2015) Meta-Analysis

Inferential statistics.

Researchers do not stop at descriptions of samples, but also draw conclusions for the populations from which the samples were drawn. Inferential statistics are used in performing this second task.

1. Testing the significance of a difference. Scientists usually begin their research with an interest in a population of persons and situations. Assume that a researcher hypothesizes that older workers are more productive than younger workers. The researcher draws a sample of workers 30 years or older and another sample of younger workers under 30 years in age. A mean performance of 4.8 is found for the older sample and a mean of 3.0 is found for the younger workers. Can the researcher now conclude that the hypothesis is correct and older workers are indeed better performers? To answer this question one would need to conduct a statistical test of the significance of the difference in the means to allow a determination of whether this difference is statistically significant or if it is attributable to chance. Inferential statistics always involve taking a hypothesis and comparing it to some alternative hypothesis. In this case the alternative hypothesis is that no difference exists in the mean performances of younger and older employees. This alternative is called the null hypothesis. The statistical test indicates the likelihood of finding the observed difference between the samples if the null hypothesis were true (i.e., the means of the populations from which the samples were drawn were actually the same).



In concluding whether a difference is large enough to deserve out serious attention, it is common practice to expect that the probability of a difference is less than 5 in a 100 or even lower (less than 1 in a 100). Assume that the mean performance of older employees is larger than the mean physical ability of younger employees and that the probability of finding this difference under the null hypothesis is less than .05 ( $p < .05$ ). This is equivalent to saying that the chance is less than 5 in a hundred of drawing samples that differ this much if older employees and younger employees actually did not differ in performance. Such a difference is referred to as a statistically significant difference. There is nothing absolute about requiring a probability level of .05 or lower. One could decide to require another probability level, say .10 or .25. Nevertheless, requiring a .05 or lower level reflects the general reluctance of scientists to accept differences as real unless the possibility of being a chance event is low.

In addition to testing the significance of differences in means, inferential statistics also are used to test the statistical significance of correlations. For example, one might measure age and performance in a sample and compute the correlation between these two



variables. If a correlation of .779 is found between hours spent studying and GPA, as indicated in figure 3.6, the next step is to estimate the likelihood of obtaining this level of correlation given that the relationship in the population from which the sample is drawn is some other value. The most common approach is to estimate the likelihood of the correlation obtained in the sample being larger than an assumed population correlation of 0 (i.e., no relation or a null relation). The statistical test indicates the likelihood of obtaining a correlation of the magnitude found in the sample if the correlation in the population is actually 0. It is also possible to compute the statistical significance of differences in correlations computed on different samples. Perhaps the correlation of .779 depicted in figure 3.6 was found for students at university A and a correlation of .500 was found at university B. A test for the statistical significance of the difference between the two correlations could be computed that would indicate the probability of finding the difference observed if the difference was actually 0.

2. Confidence intervals. Another approach to drawing inferences about the size of a correlation or differences between means is the confidence interval. Although statistical hypothesis testing is similar in many respects to confidence intervals, many researchers prefer stating the confidence interval over a conventional statistical test of significance. A confidence interval is a range of scores around a mean score showing the precision of the mean score. The reader has no doubt heard opinion polls on TV in which there is a report of the percentage saying they would vote for each of several candidates as well as a margin of error for the projected vote. In stating a margin of error, the pollster is using confidence intervals. For instance, if a poll states that 48 percent favor candidate A, 40 percent candidate B, and the margin of error is plus or minus 5 percentage points. Assuming that a 95 percent confidence interval is being used here, one can interpret this as meaning that there is a 95 percent probability that the percentage actually favoring candidate A is between 43 and 53. The flip side is that there is a five percent chance that fewer than 43 percent or more than 53 percent would favor candidate A. A similar interval is constructed around the 40% stating they would vote for candidate B shows that there is a 95% chance that between 35% and 45%. The overlap between the confidence intervals for candidates A and B suggest that the election is too close to call. Given the error in the sampling of opinion, there is a degree of uncertainty about whether which candidate will prevail. This inference depends on the error of measurement that is used in constructing the interval. In the example a 95% confidence interval was used. Assume that an 80% confidence interval is used and that the error measurement is plus or minus 2%. In this case there the probability is 80% that between 50 and 46 favor candidate A and that between 38 and 42 percent favor candidate B. Using this confidence interval, there is no overlap in the two intervals. If one is comfortable with this level of error, then one could infer that candidate A will prevail over candidate B in popular opinion. The chances of being wrong in one's prediction of no difference in the popularity of the two candidates is 5% using the 95% confidence interval and 20% using the 80% confidence interval. It is not entirely correct to state the chance of obtaining a specific percentage of support based on the confidence interval. A more precise statement is that if 100 samples of opinion were taken then the percentage calculated in 95 of these samples would fall within the interval set for the 95% confidence interval and 80 of these samples would fall within the interval set for the 80% confidence interval.



As suggested by the example, a confidence interval indicates the possible range around the estimate and in so doing gives a sense of how much uncertainty there is estimating a measured value. Wide confidence intervals constructed around an estimate leave a lot of uncertainty about the true value of what is measured whereas narrow confidence intervals allow more certainty in the estimate.

To construct a confidence interval the researcher first needs to calculate the standard error of the statistic and then multiplying the standard error by a constant. This constant is a value corresponding to a point on the normal curve associated with the level of confidence (or certainty) that one is willing to live with in making inferences about the statistic. Three common confidence intervals are for the 90%, 95% and 99% levels. The constants on the normal distribution are 2.576 for the 99%, 1.96 for the 95% confidence interval, and 1.645 for the 90% confidence intervals. Assuming a normal distribution 99% of the population scores should fall in the interval ranging from +2.576 above the mean of the population and -2.576 below the mean. 95% of the scores should fall between +1.96 above the mean and -1.96 below the mean. 90% of the scores should fall between +1.645 and -1.645. To construct a confidence interval, a researcher takes one of these constants and multiplies it by the standard error of measurement for the statistic that is estimated. The upper end of the interval is then calculated by adding the product to the mean. The lower end of the interval is calculated by subtracting the product from the mean. The z scores taken from the normal distribution are always the same, but the calculation of the standard error of measurement varies from one statistic to another. Readers of this textbook will frequently encounter meta-analyses that report Pearson bivariate correlations. Statistical significance is reported when the confidence interval for the mean correlation (weighted by sample size) excludes the zero point. The confidence interval varies across meta-analyses but typically is at 95% level.

To calculate the confidence interval for various statistics, try your hand at these online calculators:

For the mean:

<http://www.danielsoper.com/statcalc3/calc.aspx?id=96>

<http://www.select-statistics.co.uk/confidence-interval-calculator-population-mean>

For the proportion:

<https://www.mccallum-layton.co.uk/tools/statistic-calculators/confidence-interval-for-proportions-calculator/>

For the correlation coefficient:

<http://www.vassarstats.net/rho.html>

Although this chapter will not go into any more detail on hypothesis testing and inferential statistics, the reader who wishes to know more is advised to answer the exercises at the following link in the Rice University Virtual Statistics Lab.

[http://onlinestatbook.com/2/logic\\_of\\_hypothesis\\_testing/ch9\\_exercises.html](http://onlinestatbook.com/2/logic_of_hypothesis_testing/ch9_exercises.html)

## Measurement of Variables

One of the goals of science is to describe the variables that are the focus of the research in a way that others can repeat the research. The rules by which a person, object, or event is assigned a value on a variable is referred to as measurement. The specific instruments or devices used to assign the values are referred to as scales or measures. For an online discussion of alternative scales of measurement go to the following link. Realize that the video refers to another textbook...so the specific references to chapter numbers are not from your text:

<http://www.youtube.com/watch?v=FYcWzC4hxBs>

### Levels of measurement.

There are four levels of measurement with scales at each level identified as nominal, ordinal, interval, and ratio. A nominal scale simply names a group of persons based on the attribute and does not reflect a quantity or magnitude of the attribute. The numbers on the jerseys of football players reflect a nominal scale in which individual players are given unique numbers that signify positions. If a player has number 78 and another player has 82, nothing can be said about much more one player has of something than the other. On the other hand, ratio scales do reflect the amount or magnitude of an attribute, and there is an absolute zero point on the scale reflecting the absence of the attribute. Weight is measured on a ratio scale. With this type of scale, individuals can be directly compared on how much heavier one person is compared to the other. Thus, a person who weighs 100 pounds is twice as heavy as a person who weighs 50 pounds. In between the nominal and ratio scales are ordinal and interval scales. Ordinal scales indicate the rank order of persons measured on the scale but do not allow statements about how far apart they are on the scale. The only conclusion that can be made is that one person has more or less of the attribute measured than the other. An interval scale indicates the distance separating the people measured on the attribute. Consequently, a number on the scale allows conclusions about the rank order of the people and gives some indication of how far apart they are on the attribute. Because there is no absolute zero point on the scale, however, an interval scale does not allow conclusions as do ratio scales about how much more one person has of an attribute than another (e.g., has twice as much as the other). An example of an interval scale is a thermometer. If the temperature on one day is 70 degrees Fahrenheit and on another day it is 35 degrees Fahrenheit, it can be said that one day is hotter than the other. It can also be concluded that the difference between these two days in temperature is equivalent to the difference between a 70-degree day and 105-degree day. It cannot be concluded, however, that a 70-degree day is twice as hot as a 35-degree day. The type of statistical analysis that is most appropriate depends on the level of measurement. It does not, for instance, make sense to compute a mean or standard deviation on nominal data. If this still isn't clear, try out the following video for further discussion:

<http://www.youtube.com/watch?v=hZxznzft5v8>

The reader also may want to go to the following link in the Rice Virtual Statistics lab for additional discussion of levels of measurement and do the exercises associated with the discussions.

[http://onlinestatbook.com/2/introduction/levels\\_of\\_measurement.html](http://onlinestatbook.com/2/introduction/levels_of_measurement.html)

[http://onlinestatbook.com/2/introduction/measurement\\_demo.html](http://onlinestatbook.com/2/introduction/measurement_demo.html)

### Reliability of measurement.

As discussed previously, a science is precise. Various indicators of precision have been developed to guide scientists in their determination of how precisely attributes are measured on a scale and how much confidence one can place in the data collected with the scale. This is a short clip from a series on astronomy that is very relevant to psychology. As seen here, the theory of error of measurement that is so important to research in I/O psychology and other areas of psychology actually came from the physical sciences.

<http://www.youtube.com/watch?v=e0bk9BY2nWc>

The most important indicator of the precision of measurement in the social sciences is reliability. The concept of reliability refers to the extent that a measure is relatively free of random error and is consistent in the numbers assigned to objects or events. There are four approaches to estimating the reliability of a measure: test-retest, internal consistency, parallel or equivalent forms, and inter-rater reliability.

The test-retest method focuses on the measure's stability over time. For instance, a researcher could estimate the reliability of a job satisfaction scale by giving the scale to a group of employees and checking to see whether the employees maintain the same relative order on satisfaction at each testing. If on retest, the most satisfied employees are among the least satisfied whereas the least satisfied are among the most satisfied, then the measure is possibly unreliable.

Another approach to assessing reliability is to examine the internal consistency of the measure. Often a single psychological scale consists of several components (items, trials, samples, observations, etc.), and these components are combined on the assumption that the values yielded across components are consistent. One might measure job satisfaction, for instance, by taking the mean response to each of ten questions about satisfaction with pay, supervisor, etc. If there were large inconsistencies across items in which high satisfaction with one facet is accompanied by dissatisfaction with another facet, then combining the separate items would yield an unreliable measure.

Related to internal consistency, but less commonly used, is the method of parallel or equivalent forms. In this case one constructs equivalent forms of a measure and examines the correlation of scores on the two forms. To the extent that the scores on the two forms are highly related, the measures are reliable. It is crucial in using this method that the two forms are actually equivalent in that they have equal means, variances, and the same correlations with other measures.

The fourth approach to assessing reliability is interrater reliability. For instance, to measure the performance of employees a researcher might ask three supervisors to each rate the performance of the employees and then averaging the three supervisory judgments. A reliable rating of employees on this performance measure is one in which the supervisors are similar in the relative ratings of the three employees. Supervisor 1 gives the highest rating to employee A, the next highest to employee B, and the lowest to employee C. Similarly, supervisor 2 gives the highest rating to employee A, the next highest to employee B, and the lowest to employee C. Note that supervisors might assign different points on the rating scale to the three employees but the ranking of the three employees on the scale is the same. Interrater reliability is the extent of consistency of ratings. Interrater agreement is whether the supervisors assign the same numerical ratings to the employees. One could find that the supervisors give the same relative ratings to the employees but that they use a different portion of the scale and assign different absolute ratings.

Although a reliable measure is relatively free of random error, it could still suffer from systematic error. Thus, each of several supervisors might consistently err in a lenient or severe direction in their ratings of the performance of employees, but their ratings could still be reliable in that the ordering of the employees is consistent across the three supervisors. Similarly, in a test-retest situation, it is not uncommon to find that test scores of employees improve as the result of practice. A high degree of reliability is still possible, however, if the employees all improve together and they maintain a similar rank ordering of scores across the two administrations of the test.

For further discussion of the concept of reliability go to:

<http://www.youtube.com/watch?v=kDW0Y5msB0A>

Validity of measures.

The second major basis for evaluating a measure is validity. The validity of a measurement basically refers to whether the number obtained truly reflects what the user intends to measure. If the intent is to measure job satisfaction with a series of questions, do these questions in fact reflect job satisfaction? If the intent is to develop a battery of tests to measure competence to perform the job, do my tests really tap competence? Reliability and validity are related, but it is crucial to understand the differences between the two concepts. A reliable measure provides consistent readings but is not necessarily valid. A palm reader might provide very reliable readings of future job success but the measure in this case is totally lacking in validity as a measure of performance potential. On the other hand, a valid measurement is necessarily reliable. A measure that yields wildly discrepant readings from one time to the next is unlikely to provide what it is intended to provide. In general, reliability is a necessary but not sufficient condition for validity, with reliability setting the upper bound to the level of validity that one can expect to find in a measure.

For further discussion of the concept of validity go to:

<http://ec.libsyn.com/p/3/7/0/3700d5413d1b2fc1/validity2.mp4?d13a76d516d9dec20c3d2>

1. Criterion related validity of measures. Traditionally three types of validity have been presented. Criterion related validity refers to whether a measure allows correct prediction of a criterion variable. For instance, a common concern in I/O psychology is whether tests of abilities predict performance on the job. One way of computing criterion related validity is to use a predictive design in which the ability tests are given to job applicants. The correlation coefficient is later computed to show the relationship of ability scores on the tests of those who are hired and the later job performance of these same employees (often measured by supervisor ratings). Another approach is to use the concurrent design in which the ability tests are administered to a sample of current employees and the correlation of their test scores and their performance evaluations is computed. In both cases, the tests are said to have criterion-related validity to the extent that they allow the prediction of job performance. The correlation coefficient of predictor and criterion is known as the validity coefficient of the test.

2. Content validity of measures. A second approach to validating a measure is to examine its content validity. A measure is content valid insofar as it actually provides a good sample of the domain of behaviors that it is intended to measure. Take, for instance, a typical exam in a course. The test is content valid to the extent that it provides a good sample of material from the lectures, classroom discussions, text, and other materials that students are expected to know. If all the questions were taken from one chapter to the neglect of other chapters, then the test is obviously low in content validity. Likewise, a test of achievement motivation is content valid to the extent that it provides a representative sample of achievement-related behaviors. Unlike criterion-related validation, there is no single quantitative index of content-validity, although there have been attempts to propose such an index (Lawshe, 1975). The evaluation of content validity requires that the domain that is sampled is carefully specified and rests largely on the judgment of experts that the sampling from this domain is unbiased.

3. Construct validity of measures. This is the most general of the various approaches to validity and refers to whether scores on a measure reflect the construct that it is purported to measure. The primary question in criterion-related validity is "Does the measure predict?" The primary question in content validity is "What does the measure contain?" In construct validity, the essential question is "What does the measure really measure?" Construct validation goes hand-in-hand with theory development and testing (Binning & Barrett, 1989).

a. Steps in evaluating construct validity. According to Nunnally (1978), the construct validation of a measure requires three steps:

\*Specify the domain of observables related to the construct. This is similar in many to what was discussed under content validity. If the researcher intends to measure a construct in developing this measure, then he or she needs to define the construct and outline the various observable behaviors that might constitute the domain of the construct. In developing a measure of employee performance, researchers would want to

give careful consideration to the various behaviors that are included in the performance domain. While they might exclude behaviors such as ingratiating the boss, they would want to include other behaviors such as providing good customer service. If the researchers developed a job satisfaction measure, that they might define the domain as including attitudes about pay, fellow employees, the work itself, company policies, the work environment, and the like. In developing a measure of anxiety, they might specify the domain of anxiety related behaviors as including such responses as fear of the dark, worrying about what might happen, anxiety about catching diseases, panic attacks, freezing on tests, etc.

\* Examine the relations among observables that are in the domain. The next step is to determine whether the many observables specified in step 1 hang together well. For instance, one might have persons rate the extent to which they experience various fears and anxieties specified in step 1. One would then examine the extent to which the correlations among these responses are positive. If persons who state that they frequently have panic attacks and freeze on tests also have anxieties about catching diseases and fear the dark, then the total score on this test is more likely to reflect a single construct of anxiety. Note that this is essentially the same as evaluating reliability of a measure with the internal consistency approach. If responses to the various items are not highly related, then this not only suggests that the measure is not a reliable measure but that it lacks validity as a measure of the construct.

\*Examine the relations among different constructs. Our theories should dictate how the construct underlying our measure relates to other constructs. Validating the measure becomes a process of empirically verifying that our measure of the construct is related to measures of the other constructs in a manner that is consistent with the theory. From a theory of anxiety researchers might predict that highly anxious persons experience more job stress when faced with high job demands. They might then examine the correlation of the measure of anxiety with measures of job stress under low and high levels of job demands. If the hypothesis is supported by the data, then not only is the theory supported, but the construct validity of the measure is also supported. A basic assumption behind construct validation efforts is that there are good theories and valid measures of the other constructs. For instance, if researchers fail to find support for the above hypothesis, they cannot conclude support for construct validity of the anxiety measure unless they are confident in the theory and the validity of the measures of job demands and stress. From the discussion so far it is apparent that construct validation is a continuing process rather than a one-shot affair. As more hypotheses are tested, and a measure is shown to relate to other valid measures in a manner that is consistent with theory, researchers are more confident that the scale measures the construct that it is purported to measure. Given that the number of hypotheses that can be posed for a construct is infinite, the process is never really completed.

A problem that exists in attempting to show construct validity through examining the relationships of measures of various constructs is that the use of the same method of measurement can result in artificially high levels of correlation. Common method bias

refers to the fact that some degree of correlation is likely among similar methods of measurement, even if the measures tap different unrelated constructs.

b. The multiconstruct multimethod matrix (MCMM) approach to construct validity. An important strategy of construct validation that attempts to take into account common method bias is the multiconstruct multimethod matrix (MCMM) approach. When originally proposed, this construct validation strategy was called the multitrait multimethod (MTMM) approach (Campbell & Fiske, 1959). “Trait” essentially referred to any psychological construct, not just traits such as ability or personality. In the interest of greater clarity, this chapter will use construct instead of trait. In determining construct validity with a MCMM strategy one would gather data using the measures that are of primary interest and compute correlations among them.

\*\*\*correlations among the scores obtained with other measures of the same construct (the same construct/different method matrix – also called the validity diagonal),

\*\*\*correlations among scores obtained with measures of different constructs that use the same approach (the different construct/same method matrix),

\*\*\*and correlations among scores on different constructs obtained with different methods (the different construct/different method matrix)

Assume that a researcher wants to assess the construct validity of two measures used in assessing the extent to which members of a group effectively work together in their meetings. There are four constructs identified for meeting effectiveness: participation (do members fully participate in the discussions), listening (do members listen to each other), organization (does the organization use an agenda and is it organized in its activities), and conflict management (do members effectively manage disagreements). Two different methods are used to assess these four constructs: self-report (members report on the effectiveness of the group meetings for each construct) and external observations (an observer reports on the effectiveness of the group meetings for each construct). Data are gathered on groups using the two methods of evaluating the four constructs, generating eight scores. The correlations among all eight of the scores are then computed and a multiconstruct multimethod matrix is constructed. Assume that the researcher generates the following matrix of correlations. What can the researcher conclude from the pattern of correlations for the construct validity of the measures?

The multiconstruct multimethod approach involves four sets of analyses:

\*\*\*Compute the correlation between the measure and other established measures using the same method. To do this check to see if the correlation is positive between the method of measuring the construct and a well-established measure using the same method to measure the same trait. For instance, one might show that the self-report measures of group effectiveness are positively related to the observer ratings of group effectiveness for each of the four constructs. In the hypothetical data presented in figure 3.8, there is a statistically significant, positive correlation between the observer and self-

report measures for each group effectiveness construct (see the same trait/different method matrix or the validity diagonal). This is confirmation of convergent validity, i.e., different methods of the same construct yield similar results. The researcher might want to stop at this point and declare the measures construct valid. That would be a mistake. In addition to convergent validity, the discriminant validity of the measures needs to be evaluated. The assessment of discriminant validity requires three additional steps, described in steps 2, 3, and 4.

\*\*\* For each construct, compare the correlation in the validity diagonal (i.e., the same construct/different method matrix) to the correlation between that construct and the different methods of measuring the other constructs. The correlation in the validity diagonal should be larger than the correlations found for the construct and the other constructs when the method of measuring the construct differs from the method of measuring the other constructs. In figure 3.8, the correlation obtained between self-ratings of organization and observer ratings of organization is .75. This is larger than the correlations between self-ratings of organization and observer ratings of listening, conflict management, and participation (.15, .17, and .20, respectively). It is also larger than the correlations of self-ratings of organization and observer ratings of listening, conflict management, and participation (.11, .15, and .22, respectively). This is one indication of the discriminant validity of the organization measures.

\*\*\*\*For each construct, compare the correlation in the validity diagonal (i.e., the same construct/different method matrix) to the other correlations between that construct and the other constructs when the same method is used to measure them. The correlation in the validity diagonal should be larger than the correlations found for the construct and the other constructs when the method used to measure the variables are the same. In figure 3.8, the .75 correlation in the validity diagonal is larger than the correlations obtained between self-ratings of organization and self-ratings of listening, conflict management, and participation (.13, .16, and .32, respectively). Also, it is larger than the correlations between observer ratings of organization and observer ratings for listening, conflict management, and participation (.15, .17, and .20).

\*\*\* For each construct, compare the patterns of correlations obtained in every triangle within the correlation matrix. The same pattern should be found between the construct and the other constructs regardless of whether the same or a different method is used to measure them. The data in figure 3.8 support this criterion of discriminant validity. The pattern of correlations of organization with the other three dimensions is the same for all four of the triangles of correlations associated with organization. The correlation between organization and the other constructs is largest for participation, followed by conflict management, and listening. This rank order of the size of the correlation is the same regardless of whether the same method is used to measure organization and the other constructs or different methods are used.



METHOD	Self-report					Observer ratings			
	CONSTRUCT	Org	Lis	CM	Part	Org	Lis	CM	Part
Self-report	Organization (Org)								
	Listening (Lis)	.13*							
	Conflict Management (CM)	.16*	.20*						
	Participation (Part)	.32**	.36**	.38**					
Observer ratings	Organization (Org)	.75***	.15*	.17*	.20*				
	Listening (Lis)	.11*	.80***	.22*	.30**	.12*			
	Conflict Management (CM)	.15*	.19*	.65***	.41**	.21*	.25*		
	Participation (Part)	.22*	.25*	.35**	.55***	.24*	.31**	.35**	

\*\*\*statistically significant,  $p < .001$ ; \*\*statistically significant,  $p < .01$ ; \*statistically significant,  $p < .05$ .

Same Construct/Same Method Matrix (Validity Diagonal)	Same Construct/Different Method Matrix	Different Construct/Same Method Matrix
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Figure 3.8: Illustration of the Use of the Multiconstruct Multimethod Approach to Assessing Construct Validity Using Fictional Data

The conclusion that the measures possess construct validity is warranted if the correlations in the matrix meet the four criteria. In other words, the scores obtained with different methods in measuring the same construct not only converge but there is evidence that the methods provide a basis for discrimination that is not confounded with the methods that are used in measuring the constructs. It is important to note that these are concocted data created for the purpose of providing a clear example. In the made up data in the figure, the evidence supports the construct validity of all the measures. But things are seldom that neat in actual MCMM studies, however. Also, simply eyeballing the correlations is not enough to make sense of the findings. Researchers now use sophisticated statistical methods to pinpoint the amount of variance associated with method and construct and to provide confirmatory tests of the construct validity of measures (Höfling, Schermelleh-Engel & Moosbrugger, 2009; Oort, 2009; Schmitt & Stults, 1986; Woehr, Putka, & Bowler, 2012).

For a more in-depth discussion of the MCMM (i.e., MTMM) validation strategy check out this link:

<http://www.socialresearchmethods.net/kb/mtmmmat.php>

c. Factor analysis. One question frequently raised in assessing construct validity is whether the items constituting a multi-item scale is measuring one construct or whether the scale is multidimensional and reflects multiple constructs. Two of the statistical procedures used to assess the dimensionality of a measure are factor analysis and principal components analysis. This chapter will not delve into the differences between these approaches or the technical issues, but will instead provide a general overview of some of the features common to both. For the sake of simplicity, the chapter will refer to both as factor analysis.

Factor analysis is a statistical procedure that explores whether a set of observed variables can be reduced to a smaller set of unobserved variables. Assume, for example, a researcher uses a 10 items questionnaire that measures leadership style. The questionnaire is administered to a large sample and based on the responses to the items, the researcher can observe variations among respondents on all ten items. The researcher is curious as to whether each item in the questionnaire must be scored separately or whether it is legitimate to combine item responses to form a smaller set of scores. This is an issue of construct validity because the basic question is whether there are as many underlying factors (also called latent variables and constructs) as there are items or whether there is a smaller number of factors with sets of items serving as indicators of each factor. Factor analysis provides an answer to this question by examining the patterns of responses among the items that constitute the measure. Similar patterns of responses for a set of items provides support for the existence of factors that provide the justification for a simplification in the scoring. In other words, finding that responses to some items are highly intercorrelated is an indication that there is an unobserved variable (i.e., a factor, latent variable, or construct) that accounts for the high intercorrelations. Not only does a factor analysis identify the factors but also provides a statistical indicator of the correlation of the responses to each item in the scale and each factor. This correlation is the factor loading of an item on a factor.

One might ask people to indicate their income, education, and occupational status, and subject the responses to a factor analysis to determine whether each question needs to be considered separately or whether the researcher is justified in combining the responses to provide an indication of socioeconomic status. In this example, the underlying factor (i.e., construct or latent variable) is socioeconomic status. Finding evidence for a factor does not necessarily mean that researchers should no longer examine the component items. It is often the case that a factor analysis provides support for an underlying factor and at the same time provides support for continued attention to the individual items that are indicators of the factor. A later chapter will review factor analytic research on mental ability testing that reveals a general factor of mental ability that underlies almost all mental ability tests (the so-called “g” factor). At the same time, the factor analytic research shows support for lower level factors in the form of specific mental abilities. The research on personality tests provides little evidence for a general factor of personality but does support the existence of five general factors (also called the Big Five). Underlying each of these five factors are sub-factors that represent clusters of items loading on the higher order factor. For instance, one of the Big Five personality factors is conscientiousness which encompasses sub-factors in the form of orderliness, integrity, and achievement orientation. The research provides support for exploring personality at both the level of the higher order factor (e.g., conscientiousness) as well as the sub-factors (e.g., orderliness).

The identification of factors and the items that are considered components of each factor is often a judgment call requiring subjectivity. An example is a study conducted by Breevaart, Bakker, Demerouti and Hetland (2011). They were concerned with the construct of employee engagement which is often defined as a relationship between employees and their work in which they are totally absorbed and enthusiastic in what

they do and the organization in which they are involved. This is a controversial topic and a later chapter will discuss whether this is a worthwhile construct. Breevaart et al (2011) developed a measure of employee engagement (the State Work Engagement scale) and conducted a factor analysis that explored the dimensionality of responses to the questions. Table 3.5, provides the nine items and the intercorrelations among the items. Try to identify the clusters of correlations that identify the underlying factors. Readers who think that they are all highly intercorrelated and one factor underlies the responses are correct. The researchers in this case concluded that there is justification for concluding that there is an overall factor of worker engagement and that all the items could be combined to form a score on this general factor. Readers who concluded that there are subsets of items that constitute clusters are also correct. Using factor analysis procedures, the authors concluded that items 1, 2, and 3 load on a factor of vigor, items 4, 5, and 6 load on a factor of dedication, and items 7, 8, and 9 load on a factor of absorption. The authors in this study conducted what is called a confirmatory factor analysis. In this procedure the researchers pose alternative hypotheses for the factors and the items loading on each factor and then test the relative fit of the results to each hypothesized factor structure. This is contrasted with an exploratory factor analysis that poses no a priori hypotheses for the factor structure. The authors conclude from their confirmatory analysis that the strongest support was for three factors but that a one factor solution was also justified.

4. Validity is unitary. Although criterion related, content, and construct validity are often discussed as if they were three distinct types of validity, validity is unitary rather than consisting of distinct types (Binning & Barrett, 1989; Guion, 1980; Landy, 1986). One of the three validation approaches may seem most relevant in the attempt to support the validity of the measure, but all three approaches are used in the process of validating the measure.

Item	1	2	3	4	5	6	7	8
1. Today I felt bursting with energy.								
2. Today, I felt strong and vigorous at my job.	.94							
3. When I got up this morning, I felt like going to work.	.82	.83						
4. Today, I was enthusiastic about my job.	.84	.88	.86					
5. Today, my job inspired me.	.80	.87	.83	.93				
6. Today, I was proud of the work that I do.	.75	.77	.71	.89	.85			
7. Today, I felt happy when I was working intensely.	.79	.82	.81	.92	.87	.87		
8. Today, I was immersed in my work.	.62	.66	.64	.81	.74	.82	.76	
9. Today I got carried away when I was working.	.59	.56	.60	.65	.69	.70	.66	.69

Table 3.5: Correlation Matrix Used in  
Confirmatory Analysis of Worker Engagement Measure

Consider the typical personnel selection situation in which there is interest in inferring from a predictor measure the position of employees on the construct of performance in the job. A measure is chosen that is used to select among applicants (e.g., a test of cognitive ability) on the basis of a hypothesis that the construct underlying the measure

(i.e., cognitive ability) is related to the performance domain. To validate the predictor measure, data are collected on how employees score on the predictor and how they score on a measure of a criterion of job performance. This criterion-related approach yields a validity coefficient that is used to justify the use of the predictor. Although the criterion-related approach is probably the most important approach in the employee selection context, the hypothesis that scores on the predictor are related to performance is also supported with the content and construct validity approaches as well.

Using the construct validity approach, one could assess whether the predictor measure is a good measure of the underlying predictor domain and the criterion measure is a good measure of the underlying criterion domain. The construct validity approach is also used in assessing whether the accumulated evidence on the criterion construct and the predictor construct suggests a positive relationship. For example, one would need to review the research that has assessed the relations of cognitive ability tests to measures relevant to the performance domain. Finally, one could use a content validity approach to determine whether the predictor measure provides a representative sample of the performance domain. While it is not possible to assess with these other approaches the ability of a measure to predict performance, the evidence gathered through content and construct validation is relevant for justifying the validity of the inference that the predictor measure is related to performance domain.

5. The use of self-report measures – threat to validity? In I/O, as well as other areas of psychology, people are studied using observations by others (e.g., the supervisory reports on how much effort a subordinate exerts on the job), self-reports of the people who are studied (e.g., the subordinate reports on his or her own effort on the job), or by means of non-human, objective means (the amount of time spent working is measured with a clock). Observations and self-reports are the most frequently used approaches in I/O and typically employ rating scales in which the respondent identifies a point on a numerical scale that reflects amount, intensity, or other attribute. The use of rating scales to collect data varies in the time frame of the measure and the private vs. external nature of what is rated. With regard to the time frame, reports are retrospective in soliciting past behaviors and feelings (e.g., amount of assistance given to coworkers over the last year, typical level of performance), current in asking for ratings of something occurring at the time of the rating (e.g., feelings at this moment now), and future-oriented in asking for something that will occur in the future (e.g., intentions to leave the organization, expectation of future success).

One can also distinguish between ratings that focus on the visible and overt and measures that focus on the private and subjective. Examples of the former are reports of the number of absences from work, theft, specific acts of kindness to fellow employees, number of hours spent working at home on job-related tasks, and aggressive behaviors. Examples of the latter are reports of job satisfaction, feelings of anger at work, ego-involvement in the work performed, and liking for coworkers. With the emergence of the behaviorism school of thought in the early years (see chapter 2), researchers were advised to gather data on observable behavior rather than measuring subjective private events or relying on self-reports. This advice is misguided. Self-reports are frequently used out of necessity in the

research on human behavior in organizations and at work. Most organizations are unwilling to allow observers to watch employees so as to obtain objective records of their behavior. Even when they are willing to allow the use of observation, there are serious issues of privacy and confidentiality. More importantly, one could argue that some constructs such as job satisfaction, emotion, stress, and many attitudes and beliefs are inherently subjective and require a self-report.

Some critics have expressed concern that I/O research is vulnerable to biases and errors due to the dominant use of ratings and especially self-reports. The most obvious problem is the failure in memory associated with asking people to report on events in the distant past (e.g., Andersen & Mikkelsen, 2008). Also, self-reports by members of a group about group process may reflect more of group members' personal theories of how effective groups behave than what actually happened in their group (Staw, 1975; Gladstein, 1984). Staw (1975) demonstrated this in an experiment in which groups worked on a task and then were given false feedback that they were in the upper or lower 20% on the task. Those receiving success feedback described their groups as more cohesive, more egalitarian, more open in communications, and less prone to conflict than those told they had failed. Gladstein (1984) reported similar findings from a field setting. Another potential problem in using self-report measures occurs in the translation of what is reported and the rating on the measurement scale. For example, imagine that a rater is asked to report on the frequency with which a person engages in helping of others. The rater is to make this report on a 7-point scale in which 1 is anchored with "Very Little" and 7 is anchored with "A lot". One rater may consider 2 or 3 episodes of helping to constitute "A lot" whereas another may consider the same number to constitute a level of helping that reflects the middle of the rating scale (i.e., a 3 or 4 rating). When the target of the ratings is subjective (e.g., rate the general helpfulness of the person rated), the translation of what is observed to a specific number on the scale becomes even more problematic.

When changes in ratings are used as the dependent variable, translation difficulties can create problems for the measurement of change by confounding three types of change: alpha, beta, and gamma change (Golembiewski, Billingsley, & Yeager, 1976). Alpha change is a shift in the numerical rating that is a real change in the target of the intervention. Beta change is a recalibration of the scale. Gamma change is the redefinition of the construct underlying the scale. As an illustration, assume that employees are participate in a teambuilding program intended to increase the openness of group members in communicating with each other. To evaluate the effectiveness of the program, members of the group are asked to rate on a scale of 1 to 7 how open the group is in its communications, with 1 labeled as "very closed" and 7 every open." Assume that before the team-building intervention the average response was 6. After the intervention, the average response is 4. Should one conclude that the team-building intervention failed and actually caused more closed communications within the group? Perhaps not. The shift from 6 to 4 could reflect beta change in the form of a redefinition of the scale on which your group evaluated openness. Team members might, after going through the team-building intervention, decide that the 6 they gave to openness of communication prior to the training was actually a 2. Before the team-building members perceived the

group as moderately high on open communications, but now that they have seen the extent to which people can achieve open communication, they perceive the previous state of the group's communications as pretty dismal. A third type of change, gamma change, reflects a shift due to redefinition of the construct underlying the scale. Thus, before the team-building intervention, the group may have conceived of openness in communications as simply providing information when asked. The group was seen as open (a 6 on the scale) in terms of this definition of the construct. However, the team-building intervention leads team members to redefine open communications as including actively giving feedback, expressing emotions, confronting the boss, and taking emotional risks. In reference to this redefined construct, group communications after the intervention are now seen as more open than before the intervention. The implication of beta and gamma change is that measuring change through self-reports is often inaccurate. In our example, the intervention actually succeeded in increasing openness, but the numerical changes in the rating scales suggested a decline in openness.

Other potential problems with self-report include biases associated with social desirability (i.e., the tendency to report what appears socially favorable rather than what is socially unfavorable), context (i.e., the tendency for ratings to be influenced by the other issues, people, and events that are rated at the same time), halo (i.e., the tendency to use the same point on the scale in all ratings and fail to distinguish among dimensions rated), and the tendency to show lenient, negative, or middle-of-the-road ratings. These rating problems are explored at length in a later discussion of performance evaluation, but it is important to recognize that they are issues for all types of ratings, not just appraisal ratings.

When a researcher relies on only self-reports or other reports in the measurement of the variables that are investigated in a study, common method bias is a potentially serious threat to the interpretation of the findings. Imagine a questionnaire that asks the respondents to report on their own job performance, job satisfaction, and relationships with supervisors. As respondents answer the various questions, they might well tend to use the same part of the response scales. Also, the feelings expressed on one part of the questionnaire (e.g., self-perceived high levels of performance) might spill over into answers given to other parts of the questionnaire (e.g., expressions of job satisfaction and descriptions of good relations with the supervisor). A likely consequence is a high level of correlation among the three measures. To the extent that these biases are at work, it is erroneous to conclude that the correlations found among performance, supervision, and performance indicate the actual relations among these constructs. Some correction is needed to take into account the common method bias associated with the use of self-report to measure all the variables.

So what can one conclude from all these criticisms of self-reports? I/O psychologists, and psychologists in other specialty areas, will continue to use self-reports out of necessity despite the potential problems. The main advice is to be aware of the problems and the implications for interpretation of the findings. As readers proceed through this text, they will see many studies in which there is a reliance on ratings and self-reports. Rather than necessarily rejecting the findings, however, readers should raise questions. Was it

appropriate to use the approach in light of the construct that was measured? Could the research have used an alternative approach? And what can a researcher do to minimize errors and biases in ratings?

## Meta-analysis

This is a good place in the chapter to review an important methodology that readers will encounter throughout this text. Meta-analysis consists of statistical tools for combining the results of independent studies. Industrial and organizational psychologists were among the leaders in developing and promoting these techniques in the 1980s. Prior to this time, those attempting to draw conclusions from the research tended to rely on qualitative reviews in which they presented a box score of how many times a statistically significant effect was observed in the research. No attention was paid typically to variations across studies in the sample sizes employed, the reliability of measures, and other factors that might account for the size of effect observed. For instance, a review of the criterion-related validity of cognitive ability tests might simply enumerate the number of studies reporting statistically significant correlations or compute the mean of the validity coefficients while ignoring the fact that some studies involved samples of only 20 or 30 people whereas other samples involved samples of thousands. These qualitative reviews also tended to ignore the fact that the studies differed in the reliability with which the criteria were measured as well as the extent to which there was a full range of scores on the predictor and criterion measures.

A sounder basis for drawing conclusions is to combine the specific effect sizes (e.g., correlations, differences in means) found in the body of research, taking into account variations in sample size, reliability of measures, and restriction in range. Meta-analysis is a method for conducting quantitative reviews that provides a much better estimate of the strength of effects found in a body of research. Although meta-analyses are quite common in the published research, the techniques used are not without controversy. The quality of the conclusions is only as good as the quality of the research that generates the effects that are aggregated. Also, there is continuing debate over when it is appropriate to use some of the corrections for statistical artifacts. Nevertheless, meta-analysis is a powerful method of making sense of the myriad of studies conducted on a variety of topics in I/O psychology. The reader will encounter this methodology throughout the text.

## Basic steps involved in conducting a meta-analysis

There are different methods of meta-analysis but in I/O psychology these basic steps are usually followed:

The research (both published and unpublished) is surveyed and the statistics summarizing the relationships found in the tests of hypotheses recorded. The various statistics are converted to a common statistic (i.e., the target statistic) so that the analyst can combine the results. For instance, in a test of the hypothesis that intelligence predicts performance, the correlation coefficient computed between intelligence and performance is drawn from each study.

1. The mean of the target statistic across studies is computed. To account for the varying sample sizes used in different studies, the target statistic is weighted by the sample size. The weighted mean of the target statistic is the uncorrected effect.
2. Sometimes there is a correction for statistical artifacts. These artifacts are factors in the research that can lead to underestimates of the true effect. The most common of the artifacts are unreliability of the measures used in measuring the IV and DV and restriction of range on the IV and DV (e.g., in calculating the correlation between intelligence and performance, perhaps the research tended to only use employees who had been hired based on high intelligence, thus restricting the range of the intelligence scores to the higher scorers). There are formulae for correcting the effect sizes calculated in a meta-analysis for these artifacts that are not discussed here. The effect sizes obtained after applying these formulae are called corrected effect sizes and are usually larger to some degree than the uncorrected effect sizes. This is because the statistical artifacts lead to an underestimate of the underlying true relationship or difference. Artifacts are basically sources of noise that prevent a clear estimation of the signal that is the target of the research. The three most common artifacts that lead to underestimation of the effects are sampling error, unreliability of measures, and restriction in range on measures.
3. Assess the importance of the corrected and uncorrected effect sizes produced in the meta-analysis based on the variation found across studies in these effect sizes. If there is a wide variation in effect sizes across studies, there is less confidence that the effect is important or substantial enough to support our hypotheses that there is a positive relation between the independent and dependent variables.
4. Compare the variation found across studies in uncorrected effect sizes to the variation found across studies in corrected effect sizes. This comparison allows a determination of whether a search for moderators of the effects is warranted. For instance, if corrections for artifacts account for most of the variation in effect sizes, then it is warranted to conclude that there are few or perhaps no moderators of the effects. If considerable variation remains, then the next step is to search for variables that moderate the effects.

### Corrections for statistical artifacts in meta-analysis

The most controversial aspect of meta-analysis is the correction for statistical artifacts in step 3. The three types of artifacts that are most commonly identified are sampling error, unreliability in measures, and restriction of range on measures.

Corrections for sampling error. Sampling error has the largest influence on the variation in estimates of effect sizes. Consequently, removing sampling error is an important step in estimating the true effect size. The number of participants involved in individual studies and the number of studies are the two factors contributing to sampling error. The larger the number of participants and the larger the number of studies included in the review, the more likely the estimate of the effects will approximate the true effects. Unexpected events (e. g, layoffs), economic downturns, changes in technology, variations



in job duties, leadership differences, and many other factors are associated with individual studies and can influence the estimate of the effect. Across a large number of studies, one can assume that these factors are random and lead to underestimates in some studies and overestimates in others. Assuming that they are random, they are likely to balance out. The mean of the estimates of the validity coefficients across studies and the standard deviation of the effects allows the calculation of the extent to which sampling error is at work in the research.

Corrections for restriction of range. In some types of research, restriction of range on variables can lead to underestimations of the effect sizes. For instance, in assessing the criterion related validity of a test used as a predictor, the employer might only have data on the criterion for those hired. Thus, only those applicants who score higher on the test and those who perform well enough to keep their jobs are sampled in computing the correlation between the test scores and performance. This restriction in range can lead to lower correlations than would be found if a full range of scores on the predictor and the criterion were available. Fortunately, there are statistical corrections that can be applied to estimate what the effect size would have been without restriction of range. Here are two links to interactive demonstrations of the effects of restriction of range on the correlation between two variables.

[http://onlinestatbook.com/2/describing\\_bivariate\\_data/restriction\\_demo.html#video](http://onlinestatbook.com/2/describing_bivariate_data/restriction_demo.html#video)  
<http://cnx.org/contents/161d1fe5-0299-4188-852a-6469bb9c1953@4/Restriction-of-Range-Simulation>

Corrections for unreliability in measurement of variables. To the extent that the variables used in calculation of the effect sizes are unreliable, the effect size computed in any one study or in an aggregate of studies will underestimate the true effect size. There are formulae that researchers can use to estimate the effect size that would be achieved with higher levels of reliability on the variables studied. These are known as corrections for attenuation. These formulae only tell what might be, and do not correct for lousy measures.

Issues in artifact corrections. Of the three corrections, the correction for sampling error is the least controversial. There is no disagreement among scholars about the need to correct for sampling error when aggregating effects from several studies. Moreover, the data needed to make this correction is always almost available. All that is needed is the sample size for each study, the number of studies conducted, and the observed effect sizes. Although in principle most scholars agree that one should also correct for restriction in range and unreliability of measures, there is much more controversy surrounding these corrections. The primary source of controversy is that not all studies report data on the reliability of measures and restriction of range. Consequently, corrections often use estimated values for reliability and restriction of range based on the aggregate of the studies that do report these data.

Another source of disagreement is in what type of reliability or restriction of range estimate to use. For instance, some scholars would argue that one should never use the correlation of assessments of different raters as an estimate of reliability in these

corrections (Murphy & DeShon, 2000). The correction for sampling error is the most important of the corrections and typically the increases in validity coefficients that occur after application of corrections for unreliability and restriction in range are small. Perhaps the best advice is to correct for all three when the reliability and restriction of range are known in each individual study. When they are not known and it is necessary to rely on estimates of reliability and restriction of range, approach these corrections with caution and try out different approaches. Most importantly, consumers of the research should always exercise a healthy skepticism when corrections for unreliability and restriction lead to large increases in the estimates of effect sizes relative to the uncorrected validities.

Terms to keep in mind. This text will not go into all the controversies surrounding the use of meta-analysis. However, throughout this text, the results of meta-analyses are summarized. When correlation coefficients are aggregated in the meta-analysis, the summaries will report the following:

**k:** this represents the number of effect sizes (e.g., correlations, standardized differences between means) summarized in the meta-analysis. An issue in meta-analysis is whether multiple effect sizes in single studies should be included as separate effects in the meta-analysis. In the meta-analyses summarized in this text, no attempt is made to distinguish how many independent effect sizes are represented in the total number of effect sizes. The reader should have less confidence in findings the smaller number of effects included in the meta-analysis. For instance, a meta-analysis reviewing 10 or fewer effects provides a much less confident basis for conclusions than a meta-analysis reviewing 30 to 50 effects.

**N:** this is the total number of participants in the research reviewed. As in the case of **k**, the larger the number of participants sampled across studies included in the meta-analysis, the more confidence the reader can have in the results.

**$r_{uc}$ :** this is an uncorrected mean correlation coefficient weighted by sample size. It is computed by multiplying each correlation observed by the size of the sample used in computing the correlation, summing these products, and then dividing by the total number of participants across all samples in the research. Thus, if one sample of 30 yields a correlation of .15, a second sample of 100 yields a correlation of .40, and a third sample of 50 yields a sample of .30, the computation of the weighted mean correlation is  $(.15 \times 30) + (.40 \times 100) + (.30 \times 50) = 4.5 + 40 + 15 = 59.5$ . One would divide this amount by 180  $(30 + 100 + 50)$  to yield a weighted mean correlation of .33. The  $r_{uc}$  is not corrected for statistical artifacts.

**$r_c$ :** this is the correlation corrected for statistical artifacts. Some meta-analyses are corrected for all three of the statistical artifacts (sampling error, unreliability, restriction of range) whereas others correct for only one or two of these artifacts. The summaries of the results reported in this text do not distinguish among studies on the basis of the specific correction that was used.

\*: In this text the \* is used to signify those mean effects for which a confidence or credibility interval computed in the meta-analysis included the mean effect and excluded zero. In most cases this is determined by constructing a 95% confidence interval around the uncorrected weight mean correlation. If 0 is included in the interval, the effect is considered relatively unimportant. If 0 is not included in the interval, the effect is considered relatively important. Another way of stating this is that when 0 is included in the confidence interval it is statistically nonsignificant and when 0 is excluded, it is statistically significant. The reader should observe extreme caution in interpreting what are identified as the significant and nonsignificant effects. As noted earlier in this chapter, the computation of statistical significance is considered by a growing number of researchers as an antiquated practice that should be replaced with other approaches such as Bayesian statistics. Statistical significance is not reported for  $r_c$ . The corrected  $r$  purportedly represents the “true” relation. Consequently, sample statistics do not apply.

## Designing Research for Explanation

Developing good measures is a crucial objective in scientific research, but it is only a means to the ultimate ends of explanation and prediction. An important goal in applying scientific method to research on human behavior is to explain the relationships that are found among variables. For any single relationship (e.g., participative leaders have employees with higher productivity than nonparticipative leaders), alternative explanations are almost always possible. It is not possible to eliminate all of the possibilities, but through properly conducted research, the number of alternative explanations can be dramatically reduced. A research design is essentially a plan for how to treat variables that can influence results so as to rule out alternative interpretations. In the design of a study, researchers can hold constant, eliminate, manipulate, randomize, match, or measure variables. To the extent that a research design does not incorporate one or more of these strategies, the differences observed are subject to error in interpretation. In investigating a phenomenon, the researcher is confronted with a huge number of possible variables and interrelationships. The art of designing research is largely a matter of deciding how to treat the variables that can potentially influence the phenomenon under investigation so as to rule out alternative interpretations of the relations observed.

For an interesting podcast covering in broad outline research design go to:

[http://ec.libsyn.com/p/8/8/4/884710c5673b4dac/TPF\\_045\\_BasicResearch\\_020508.m4v?d13a76d516d9dec20c3d276ce028ed5089ab1ce3dae902ea1d01cd8f35d6c05bca98&c\\_id=1316583](http://ec.libsyn.com/p/8/8/4/884710c5673b4dac/TPF_045_BasicResearch_020508.m4v?d13a76d516d9dec20c3d276ce028ed5089ab1ce3dae902ea1d01cd8f35d6c05bca98&c_id=1316583)

### Hold constant or eliminate variables

Some variables are controlled by either holding the values of the variables constant or eliminating them. In studying leader participation and employee satisfaction the researcher might hold constant the task on which the employees are working or the sex and age of the employees so as to obtain a clearer look at the relationship of primary concern. Similarly, in studying the effects of noise on performance the researcher would

want to conduct the experiment in a setting where it is possible to control the level of noise while eliminating or holding constant other factors that could influence the results.

### Manipulate the variable

Other variables are manipulated so that they assume certain values. In research on leadership and employee satisfaction, some researchers have arranged things so that some employees are assigned a participatory leader and others are assigned a nonparticipatory leader. The variable that is manipulated in a study to determine their effect on some other variable is called an independent variable (IV) because it is independent of all other potential influences in the situation. The best way to determine what is causing what is to directly manipulate the variables that are identified as the causal factors. Of course, some variables are not amenable to manipulation, as will be discussed later.

### Measure the variable

Researchers can measure variables as they occur without attempting to directly manipulate them. For example, if they were conducting a study of leadership, they might want to observe leaders and measure the type of leadership they exhibit as it naturally occurs. The variable that is hypothesized to cause changes in other variables is called the independent variables. The variables that the independent variable is hypothesized to influence are called dependent variables because the underlying theory hypothesizes that the values of the measured variables depend on the values of the independent variable. The readers should note that some psychologists would restricted the use of the terms independent and dependent variable to experiments where the independent variable is manipulated. This text will take a broader approach and use the terms to describe variables in non-experimental research as well. The crucial consideration is whether there is a theory identifying some variables as causes and others as outcomes.

### Randomly assign research participants to conditions

Random is sometimes associated with something "bad" or arbitrary, but in research it is the most powerful means of dealing with all the unmeasurable, unmanipulated, and uncontrollable variables that are potential sources of error (see figure 3.9).



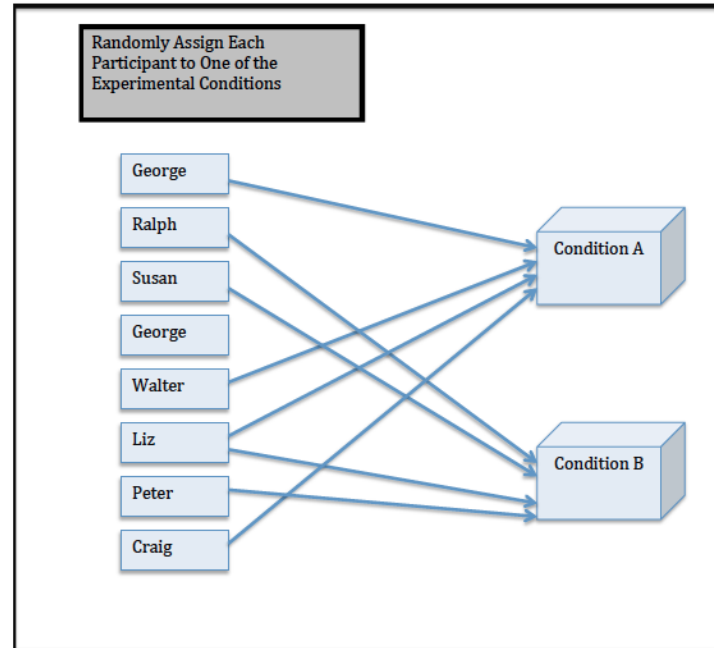


Figure 3.9: Controlling for Variables with Random Assignment

By random it is simply meant that various events have an equal chance of occurring. If interested in comparing employees under participative and nonparticipative leaders, one could allow each employee to pick the leader he or she preferred and then compare the performance of those who picked a participative leader with those who picked a nonparticipative leader. Unfortunately, this is nonrandom in the sense that there is an unequal chance of each employee working with one or the other leader. The employees who strongly prefer making their own decisions or who have prior experience on the task might prefer and choose, for instance, the participative leader, whereas those with low need to make their own decisions or who have no prior experience might prefer and choose the nonparticipative leader. To ensure that each employee has an equal chance of working with each type of leader, one would want to use a randomization procedure such as flipping an unbiased coin for each employee (heads, he works for the autocratic and tails, he works for the democratic leader). An even more sophisticated approach is to use a table of random numbers to assign employees to each of conditions.

Randomization protects against systematic errors confounding the comparison of two or more groups, but random error will still exist within each of the groups compared. For example, in an experiment one might randomly assign some employees to participatory leaders and others to nonparticipatory leaders. To the extent that the samples are large, this random assignment to conditions will equate the two groups on age and experience of the employees. However, employees within each group may differ considerably among themselves on both age and experience.

To explore further the distinctions between random selection and random assignment go to the following tutorial:

<http://www.randomizer.org/tutorial.htm>

## Match on the variable

A possible means of reducing the within group variation mentioned above is to measure the variable and then make sure that matching sets of persons are selected as subjects. In an experiment in which subjects are exposed to either a participatory or nonparticipatory leader, one could form pairs of employees who are matched on a set of variables (e.g., experience and age). For each pair, one of the employees is then assigned on a random basis to either a participative or nonparticipative leader. The visual below illustrates a common practice in research in which an experimental group is compared to a control group and differences that might exist between the experimental and control groups prior to the experiment are controlled. Let's assume that the "treatment" in this case is a participatory leader who is assigned to the subjects who are in the participation condition and the control group is an authoritarian leader who is assigned to the subjects assigned to the control group. Also assume that the hypothesis is that subjects given the participatory leader are more satisfied with the tasks they perform than subjects given the authoritarian leader. The problem is that there is uncertainty about whether there were differences between the participants in task satisfaction prior to the research. If the hypothesis is confirmed, perhaps it is the result of the fact that happier people are in the participatory leader group than in the control group where there is an authoritarian leader. If the sample of participants is large enough and participants are randomly assigned to each group, there is much more confidence in concluding that there are no pre-test biases of this sort. To make sure, the researcher could use a matched subject design (see figure 3.10) in which participants are given a satisfaction measure prior to the assignment of the leaders. The researcher assigns subjects to the conditions so that the two groups are the same on level of satisfaction. For instance, the researcher could make sure an equal number of those responding to each point on the satisfaction scale are assigned to the treatment and control groups.

## Different Types of Research

I/O psychologists use more than one type of research in testing hypotheses about behavior at work. The various approaches to research are distinguishable on the basis of how the independent variables are treated (are they measured or manipulated), whether participants are randomly or non-randomly assigned to conditions, whether it is obvious to participants that they are in a research study or not, and the setting in which the research is conducted. This section distinguishes among research studies that are experimental vs nonexperimental, lab vs. field, and obtrusive vs. unobtrusive.

### Experimental vs. nonexperimental

The essential attribute of an experiment is that participants are assigned at random to various levels of the independent variables. In some cases, an experiment involves an independent variable that is under the control of the experimenter. In other cases, natural experiments are conducted in which the independent variable is a naturally occurring event rather than a manipulated variable. A researcher who knows that an organization

plans to change over to a new technology, for example, might persuade the organization to compare the effects on morale and productivity of those given the new technology and those who are not given the technology. As long as there is random assignment of employees to the new technology and the old technology groups, this would qualify as an experiment. Natural experiments in the field of I/O psychology are relatively rare. In most of the experiments discussed in this text, the experimenter not only randomly assigned participants to various conditions of the experiment but also manipulated the independent variable.

In non-experimental research the persons studied are assigned on a nonrandom basis to conditions. One variety of nonexperimental research is the correlational study. Here the variables are measured as they naturally occur and the researchers have no direct control over what happens with either variable. Theory or commonsense may suggest that one variable causes the other. Consequently, one variable is often considered to be the independent variable (the X variable) and the other the dependent variable (the Y variable). Despite the identification of independent and dependent variables one cannot conclude from correlational research that there is a causal relation between them

There are alternative explanations for a correlation:

1. The X could cause the Y.
2. The Y could cause the X.
3. A third variable (a Z) might cause both X and Y without any direct causal relation between the X and Y. These third variables are often identified as confounding variables in that they can lead to erroneous conclusions.

For example, theory may suggest that leader participativeness causes employee productivity. In a correlational study, researchers could measure the participativeness of a leader and then see how it relates to the productivity of employees without any direct intervention to change the leader's behavior. Finding a positive correlation between the two does not allow one to conclude that participativeness is a cause of higher productivity. Although it is possible that participativeness causes higher productivity, it is also possible that higher productivity causes the leader to allow more participation. It is also possible that there are other variables that cause both participativeness and productivity and are responsible for the positive correlation. For instance, perhaps the organization tends to assign more participative leaders to groups of employees with higher productivity and less participative leaders to those groups that have lower productivity.

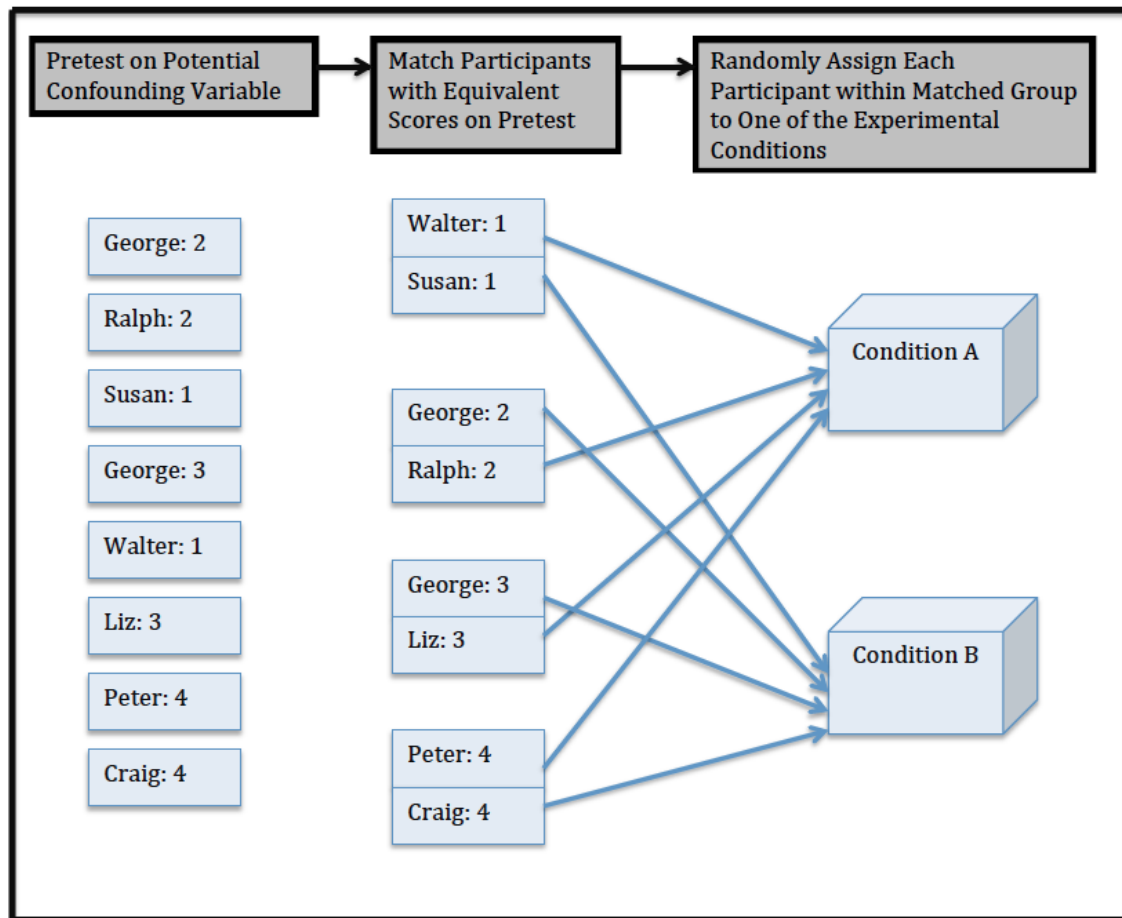


Figure 3.10: Controlling for Extraneous Variables with Matching

It is important to distinguish between correlational analyses and correlational research designs. A correlation coefficient is a description of the relation of the independent and dependent variables. It is a type of statistical analysis that could be used in both correlational and experimental studies to describe the relation found between independent and dependent variables. Take, for example, the correlational research design in which the participativeness of leaders and employee productivity are measured and the naturally occurring relation between the two is observed. One could conduct a correlational analysis to describe the relation. One could take another approach such as identifying some leaders as highly participative and others as less participative, computing the mean productivity of employees having each type of leader, and then testing the statistical significance of the difference between the means. In either type of analysis, the researcher is unable to draw causal inferences because of the correlational nature of the research design. Also consider an experimental design in which the participativeness of the leader is manipulated and employees are randomly assigned to work for a leader who is either high or low on participativeness. In describing the results of this experiment one could compute a correlation between independent and dependent variables. The researcher could assign a value of 1 to low participation leaders and a value of 2 to the high participation leaders and then compute the correlation between the independent and



dependent variables. A correlation coefficient would describe the relation and because it is an experimental design, one could also draw inferences for the causal relation between the independent and dependent variables.

A quasi-experiment is somewhere between a correlational study and a true experiment and could involve an independent variable that is either manipulated or naturally occurring (Cook & Campbell, 1979). The one important difference between a quasi-experiment and a true experiment is that the assignment of participants is nonrandom in the former and random in the latter. Evaluations of training programs often must rely on nonrandom assignment procedures. Employees participating in a program may volunteer for this program whereas those in the no-training control are chosen from among those who do not volunteer. This type of quasi-experiment is called a nonequivalent control group study, and despite the lack of random assignment, can still provide valuable information on the trained and non-trained groups. Procedures exist that investigators can use to statistically control for differences between the two groups. Also, through measuring the dependent variable (e.g., measure of training effectiveness) many times (in other words using repeated or multiple measures of the dependent variable over time) and examining the trends before and after the training intervention, the researcher can eliminate some of the alternative interpretations of differences between the trained and untrained groups. If one simply conducted a one trial pre-test and a one-trial post-test without a control group and found a big increase in productivity from pre-test to post-test, this increase could simply reflect the fact that productivity was rising over time and continued to increase after the intervention. The upward trend occurring before the intervention argues against concluding that the intervention caused the increases observed after the intervention. Taking multiple measures of productivity and examining the trend over time could allow an elimination of this alternative explanation.

### Laboratory vs. field research

In addition to designing research so as to eliminate alternative explanations, one must decide where to conduct the research. The research setting is another important basis for distinguishing among varieties of research. Laboratory research is conducted in settings created for the purpose of research. Laboratories are usually designed for the explicit purpose of controlling and eliminating extraneous variables and allowing an uncontaminated manipulation of the independent variables. In field research the settings are for some non-research purpose such as work or education. If researchers enter an organization and have employees complete a survey in their work places on their attitudes toward their supervisors, this would qualify as a field study. If they had workers come to a special room set aside for the purposes of research outside the work setting and respond to the same questionnaire, the research is conducted in a laboratory and is a laboratory study.

### Obtrusive vs. unobtrusive research

Some research is done in a manner that makes it obvious to participants that they are the objects of study. Research where awareness of being a subject of the research is high is called obtrusive, whereas research where awareness is relatively low is unobtrusive. The setting of the research determines to a large extent its obtrusiveness. Almost all laboratory research is obtrusive, but field research varies considerably along this dimension. The manner in which variables are measured is another important factor. Self-reports in which participants in the research are asked to provide introspective accounts of their satisfaction are highly obtrusive whereas using hidden observers who record signs of satisfaction and dissatisfaction among the rank-and-file is relatively unobtrusive. Finally, the method by which variables are manipulated is still another source of obtrusiveness. Typically, laboratory experimenters try to create as much impact as possible in as covert a way as possible to avoid the suspicion associated with a highly obvious manipulation.

### Factors Influencing the Validity of Explanations

The discussion so far should make clear that there are a variety of approaches one can use in conducting research. Although all are scientific, they each have their strengths and drawbacks. How does one evaluate the merits of an investigation? Cook and Campbell (1979) set forth three primary means of evaluating research design:

\*\*\*Internal validity.

The basic issue here is whether variations in X variable cause the variations observed in the Y variable? To the extent that a research design allows one to infer from findings that X causes Y, the design is internally valid.

\*\*\*Construct validity: The basic issue here is whether the variables measured and manipulated are what the researchers think they are. In other words, do the measure or manipulation of the independent variable (the X variable) and the measure of the dependent variable (the Y variable) really reflect the underlying construct identified in the hypothesis?

\*\*\* External validity: The issue here is whether the relation found between the independent and dependent variable with one set of participants, settings, or procedures are found with other participants, settings, or procedures?

The following link provides a discussion of some threats to validity.

<http://www.youtube.com/watch?v=zIpDPbRiBo>

Another link that provides a lecture on these three types of validity in evaluating research design as well as a fourth type, statistical conclusion validity.

<http://www.youtube.com/watch?v=FEhSFdjwiv8>

Research in I/O often is concerned with whether one variable causes another. A study is internally valid if one can conclude from an observed relationship between an independent variable X and a dependent variable Y, that X causes Y. Nonexperimental

research is a good starting point, but if substantial knowledge about causal relationships is desired it is necessary to conduct experiments. Here are some of the major threats to the internal validity of nonexperimental research and experimental designs that can help eliminate these threats as alternative explanations.

Correlational findings are usually subject to multiple interpretations. A fairly strong correlation exists between the act of getting married and the occurrence of pregnancy. Obviously, it is incorrect to conclude that the marriage ceremony itself caused pregnancy. The causal factor is a third variable - sexual intercourse. Although correlational research is probably the least powerful approach to explanation, a correlational study can set the stage for more rigorous explorations of causality. Also, even though one cannot use a correlational finding as definitive proof of a causal relationship exists between two variables, commonsense can allow the elimination of some alternatives. Finding that age of employees is positively correlated with performance on the job does not justify concluding that age actually caused performance. It is also safe to conclude that performance did not cause age!

For further discussion of correlation and causality go to the Khan Academy lecture at the following link: <https://www.khanacademy.org/math/probability/regression/regression-correlation/v/correlation-and-causality>

### Threats to the internal validity of a research design

Another nonexperiment that is frequently found in organizations is the simple pretest-posttest design. The dependent variable is measured prior to the manipulation of the independent variable and again after the manipulation. The effects of the manipulation are then evaluated in terms of changes in the dependent measure. Suppose, for example, researchers evaluate the effects of a new incentive program in which employees are rewarded individually for their performance on the productivity of the employees. In a pretest-posttest design, they measure the productivity of the employees prior to the changeover to the new incentive program and then again afterwards. What if they found an increase in productivity following the introduction of the incentives? Should they conclude that increases in productivity were the result of the incentives? This type of simple design, although quite common, is vulnerable to all sorts of threats to internal validity.

Here are some of the more common ones:

1. History: These are events occurring at the time of the manipulation or measurement of the variables that could account for the relation of the independent and dependent variables. Take, for example, a quasi-experimental design in which the productivity of a sample of employees is measured prior to a training program and again after the training program. How does one know that the changes in the posttest or performance were not caused by something that happened to employees in between the time the pretest and posttest? For example, employees might have heard a rumor of an impending layoff if the company did not improve its profit position. As a consequence of fear of losing their

jobs, employees might have improved their productivity. It is often the case that many things are going on at the same time of major interventions in organizations, and these other things can lessen the confidence in concluding that the independent variable caused the dependent measure.

2. Maturation. Still another factor that can create problems are the growth and learning that can occur in between the pretest and posttest. If an incentive program is imposed on workers who are in the process of learning a new job, then gains could be expected regardless of the incentives.

3. Testing. When persons are pretested in an obtrusive manner, changes observed at the posttest could reflect the pretest more than the manipulation of the independent variable.

4. Instrumentation. This threat to internal validity results from changes in the measurement process. What if, for instance, productivity was tracked more carefully after the intervention than before? Increases in productivity might simply reflect the careful attention now being given to productivity than the actual implementation of the incentive program. Other examples of changes resulting from instrumentation are observers becoming fatigued and mechanical instruments losing calibration.

One can deal with the above threats to internal validity by providing a control group that does not receive the manipulation of the independent variable. In other words, one could use a pretest-posttest control group design. In the above example, this might mean that the experimental group receives the incentive program while a control group does not. The crucial issue is how to determine who is assigned to the experimental group and the control. If the assignment was something other than random then the following factors could still threaten internal validity.

5. Selection bias. This is a common threat to validity when participants are assigned to the control group on a nonrandom basis. If employees were allowed to volunteer for the new incentive program any differences between the experimental and control groups on the dependent measure could simply reflect the fact that the employees who volunteered differed from those who did not. Employees who were committed to the organization and involved in their jobs may have been more likely to volunteer whereas those employees who were low in these respects did not. Improvements in productivity observed for the incentive program could result from the greater motivation of the employees who volunteered, rather than the specific manipulation.

6. Mortality. The term "mortality" as a threat to internal validity was taken from animal research where subjects literally died in between the pretest and posttest. In most organizational research, it is unlikely that enough employees die to influence the results, but it is not uncommon for employees to show differential dropout rates during the course of an experiment. Consequently, differences observed on the dependent measure could reflect who is left more than it reflects the effects of the independent variable.

7. Awareness of being a research participant. In a complex organization, experiments are difficult to carry off because participants are often aware that some employees are

receiving something and others are not. This awareness can evoke feelings and perceptions that affect the results. The control group might feel neglected and consequently show a decline in productivity. Conversely, the group receiving an intervention might feel special and demonstrate an increase in productivity as a result of these feelings. Differences can also result from groups feeling some degree of rivalry. A group that sees itself as the control group that is to receive "brand X" could compensate for this stigma by increasing performance. In all these cases awareness of being in a study is the causal factor rather than the variables manipulated in the experiment. This is basically what was called the Hawthorne effect in the previous chapter.

The surest way to protect against most of the threats to internal validity is to randomly assign persons to the experimental and control groups. One can have even more confidence in concluding that the independent variable caused observed differences on the dependent variable if, in addition to random assignment, pretests and posttests are taken at multiple points in time. The problems that arise when participants know they are the objects of research are not easily avoided through random assignment or multiple measurements. Indeed, some critics of traditional research methods (e.g., Argyris, 1968) have argued that this awareness of being a subject is a fatal flaw that invalidates much of the psychological research in the field and the lab. The solution according to Chris Argyris is to allow subjects to participate fully in the research rather than keeping them ignorant of the research design. Most psychologists, including I/O psychologists, have been reluctant to discard rigorous research and have seen the alternatives to randomization and control as introducing even more serious problems.

For a lecture on internal validity and the threats to internal validity, take a look at the following link:

<http://www.youtube.com/watch?v=F7kjR30tEAc>

Internal validity is concerned with whether the operationalization of the independent variable is actually the cause of the changes observed on the dependent variable. The construct validity of the independent variables in an experiment, on the other hand, refers to whether the manipulation of the independent variable actually reflects the underlying construct that it is intended to reflect. Take, as an example, an investigator who attempts to examine the effects of anxiety on motivation by manipulating anxiety through verbal abuse by a supervisor. The research measures motivation by examining the quality of the subject's performance on a task. One can question the construct validity of both the independent and dependent variables in this example (not to mention the ethics of the research). Does the act of verbally abusing subjects arouse anxiety or other emotions such as hostility or frustration? Likewise, do differences in quality of performance reflect differences in motivation or differences in skill, knowledge, or ability?

### Threats to the construct validity of a research design

Randomization and control groups cannot protect against threats to the construct validity of the independent variable. The only recourse is to repeat the experiment with other manipulations and measures of the variables to see if the same results are found. If the

independent variable is anxiety, one might manipulate anxiety by conducting one experiment in which research participants are threatened with physical pain in the form of electric shocks, another experiment in which stressful movies are shown, and still another in which subjects are threatened with failure on a task. This program of research would be unethical and unlikely to be approved by most institutional research boards, but it would all some assessment of construct validity. If the same results were obtained from all three experiments, then there is more confidence that the manipulations were actually tapping the anxiety construct. Self-reports of motivation, observing how much effort is exerted, and supervisor reports of motivation are all potential measures of motivation in addition to quality of performance. Once again, if similar results emerge across different indicators of motivation, the researcher is on stronger ground in concluding that it was motivation that was affected by the manipulation of anxiety. For further discussion of threats to construct validity see:

<http://www.youtube.com/watch?v=O4vIsTxpVgc>

### Threats to external validity of a research design

If a relationship is found between two variables in a study then an additional issue is whether the finding is capable of being repeated with different settings, subjects, and procedures. A continuing debate has been whether findings in the laboratory with college students can generalize to actual work settings (Dipboye, 1990).



Criticisms of research in lab settings. Critics of laboratory research claim that the artificial nature of the laboratory setting makes participants acutely aware that they are subjects in research. This awareness, in turn, can cause them to behave in ways that are limited to the laboratory. For instance, subjects in laboratory experiments often try very hard to do what they think the experimenter wants them to do. The power of the laboratory was made very clear to the author in an experiment in which he participated as an undergraduate. The experiment required that he swallow a sensing device on a string so that the experimenter could measure the acidity level in his stomach. Electric shocks were administered to his arms and legs when he failed to respond quickly enough to a randomly occurring signal. In addition to all this, he had to drink a glass of bicarbonate soda every 30 minutes and was not allowed to go to the bathroom. The author submitted to all of this for over eight hours. Some critics would argue that the passive acceptance of experimental demands shown by the author, and frequently observed among subjects in laboratory experiments, is unrepresentative of how people behave in the real world.

Another criticism of laboratory research is that it provides an unrepresentative sampling of stimuli, settings, and subjects. While the manipulated variables in a lab experiment

were the only stimuli presented, events in the real world usually must compete for our attention. One consequence of this is that the effects observed in the laboratory are larger than typically found in the external world. Some researchers have tested the hypothesis that performance appraisals are biased against women by giving subjects an essay that is described as coming from either a man or a woman. Some researchers have shown that the same essay is rated as poorer if the author is described as a woman than if the author is described as a man. Is bias against women in a lab situation such as this likely to generalize to performance appraisal situations in organizations? Critics of this type of laboratory research have argued that in the messy world of the organization, those evaluating performance are presented with lots of other factors in addition to the sex of the ratee. In a lab experiment such as the one described here, the manipulation of sex is so obvious that it is hard to miss. In a similar vein, Murphy and Balzer (1986) have speculated that effects found in laboratory experiments are stronger than the effects found in organizations because raters in the lab do not have as difficult a time distinguishing the "signal" from the "noise" as they do in the real world.

The biggest complaint against the external validity of laboratory research is that the subjects are usually college students. Those readers who are college undergraduates may believe that students are representative of "normal" humans. But critics such as Sears (1986) have expressed their doubts. He claims that the typical American undergraduate is less likely than the general public to have a fully formulated sense of self, but more likely to show large shifts in self-esteem, feelings of insecurity and depression, egocentrism, and need for peer approval. College students, according to Sears, are not even representative of other young people in that they have higher cognitive abilities, but are more compliant to authority and have less stable peer relationships. The result of using students as subjects, according to Sears, has resulted in a view of human behavior as '.....lone, bland compliant wimps who specialize in paper-and-pencil tests' (p. 527). Consistent with this claim, Gordon, Slade and Schmitt (1986) found 12 studies that appeared to show major differences between students and non-students and concluded that researchers should not use college students if the intention is to draw conclusions about behavior in work organizations.

In defense of lab research. With all these complaints about the validity of the laboratory as a setting for research one would think that laboratory research would cease. IO psychologists continue to go to the laboratory for the reason that they cannot study some of the most important phenomena in IO psychology in the field and must go to the lab. For example, it is usually difficult and often impossible for IO psychologists to go into an organization and manipulate the leadership styles of supervisors. Consequently, laboratory experiments are needed to provide controlled investigations of leadership dynamics.

Despite the need for laboratory research, can one conclude anything about "the real world or work" from using college sophomores in highly contrived settings? The laboratory has had its defenders. One argument is that being representative of the real world is not an important consideration when attempting to examine basic psychological processes. Indeed, in many laboratory experiments the investigator is more interested in determining

whether something "can" occur, not the frequency or strength with which it typically occurs in the external world. Other defenders of the laboratory have argued that the lab does not have to look like the real world to yield results that are generalizable. The more important issue for Berkowitz and Donnerstein (1982) is that the subjects in the lab interpret the lab situation in the same manner they would interpret the field setting. Others have argued that essential similarities or boundary variables determine whether lab findings are generalizable, not general similarity. Assume that the essential variable influencing whether subjects act as they would in the field is whether they are held accountable for their behavior. If the reasoning is correct, the laboratory need not be similar in all respects to the field but only with regard to this essential variable, i.e., make participants accountable for their actions.

Another defense of the laboratory is that research in these settings is usually focused on general processes and theory. A researcher may need to create a novel or even ridiculous situation to flush out properly the phenomenon under investigation. Through such research, it is possible to validate a theory or model of the phenomenon that is then generalizable across a variety of situations. Whereas one can always doubt the generalizability of the findings of any individual, specific study, one can have much more confidence in the generalizability of a theory that is tested and developed through a program of experimental and nonexperimental research in both the lab and the field. The above arguments are only a few of the pros and cons of lab research. The best approach is perhaps to use more than one method, realizing that each is limited in some respects and that all research involves tradeoffs. In field research the researcher attains more realism but at the cost of precision and control. In lab research the researcher has a lot of control but at the cost of realism. By testing hypotheses in both the lab and the field, the researcher can determine whether findings in the lab setting are transportable to the field setting. There are a few areas of research where enough work has been done in both settings to allow these types of comparisons. A recent book edited by Edwin Locke (1986) reviewed findings in the laboratory and field from several areas of research and provided a highly optimistic view of the generalizability of laboratory research. The most reliable effects uncovered in the lab appeared generalizable to field settings.

Looking for statistical interactions in evaluations of external validity. One could frame all of the above discussion about lab vs. field in terms of statistical interactions. Imagine a researcher who tests the hypothesis that a leader who allows employees to participate in decision making will have more productive employees than a leader who is authoritarian and directs the employees (see figure 3.11).

The researcher conducts an experiment in the lab in which he randomly assigns to groups either a participative or an authoritarian leader. He finds that participative leaders have more productive employees than authoritarian leaders. He then replicates the experiment in the field. Employees are assigned to either a participative or authoritarian leader and the effects of the leadership styles on employee productivity are measured. Consider the following alternative sets of results (see figure 3.11).

The real value of this relation, however, lies in the ability to predict how successful a



student will be in college based upon his or her performance on the SAT. In fact, that is how cutoff scores are frequently determined for acceptance into colleges or universities, and why prestigious schools have high cutoff scores. The mass of predictive data concerning SAT scores and college grades indicates that if a student does not perform at a certain level on the SAT, then the likelihood of success in college course work drops.

As discussed earlier in the section on statistical procedures, it is possible to use more than one predictor in regression analyses. For example, in predicting first year college grade point averages, universities often consider the high school grade point average, letters of recommendation and SAT scores. The use of multiple predictors can enhance our ability to predict the outcome (in this case, college grades), and is referred to as multiple regression. Chapter 10 returns to this procedure in a discussion of how multiple regression is used to determine the optimal combination of tests to use in predicting job performance.

It is important to recognize that achieving good prediction does not necessarily require an explanation of why variables are related. Why students with higher SATs achieve higher grades is still open to debate, but this has not stopped the use of SATs in college admissions. On the other hand, a relation between two variables may have a good explanation, even though it is not possible to predict one variable from the other. For an online tutorial on first, correlation, and then, regression check out:

correlation:

<http://www.youtube.com/watch?v=BXXtkYOqAfM>

regression:

<http://www.youtube.com/watch?v=xojW6OEDfC4>

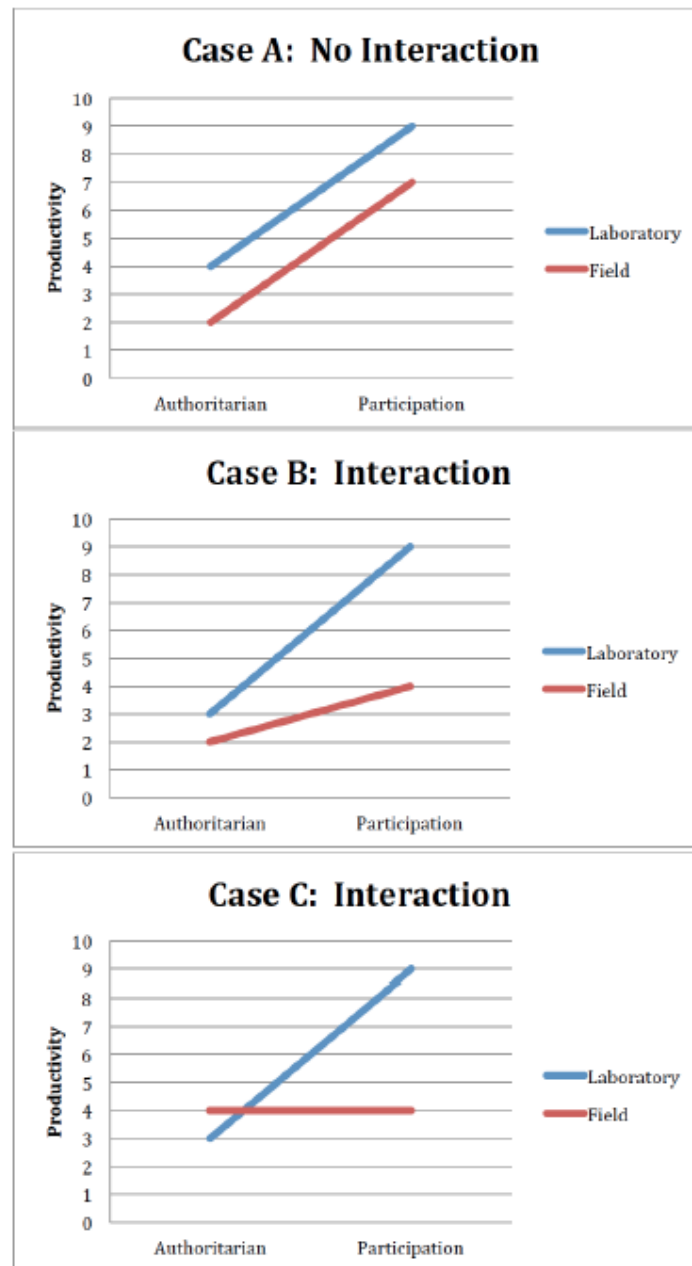


Figure 3.11: Hypothetical Results Showing Potential Effects of Leader Style and Research Setting.

### Ethics in I/O Psychology Research

In discussing how best to conduct research it is easy to lose sight of the fact that human beings are the focus of the research. I/O psychologists along with all other psychologists must adhere to ethical guidelines in conducting their research (see chapter 2). Here is a summary of some of the major attributes of these guidelines.

The I/O psychologist carefully considers prior to the research the possible risks involved and takes safeguards to protect the rights of the human participants. Perhaps the most important safeguard is that the "investigator establishes a clear and fair agreement with the research participants, prior to their participation that clarifies the obligations and responsibilities of each." This means that the investigator must inform the participants prior to the research of those aspects of the research that might influence their decision to participate. Moreover, the investigator should answer the questions of participants. Sometimes research requires that investigators keep participants in the dark on various aspects of the methodology. Investigators are under no obligation ethically to divulge everything to everyone prior to the research, but they must take care to protect subjects from physical or psychological harm. Most importantly, investigators must obtain the informed consent of participants by informing them of the potential risks and then giving them the opportunity to decline to participate or to withdraw during their participation. After the research is completed, the investigators are obligated to make a full disclosure of what was done and why. Investigators should treat any information collected on individual participants as confidential and should not share this information with others without the permission of the participants.

When research is conducted in a field setting with actual employees the ethical responsibilities become even more complex. Not only is the investigator held to the above responsibilities, but there are also responsibilities to the organization and the management of that organization. An I/O psychologist is obligated to inform the organization of what he or she is doing and must ask their permission to conduct the research. A particularly sticky issue can arise when the I/O psychologist is in the situation of being a consultant to the organization. If an employer does wish to disclose the results of research, the psychologist must tell participants prior to the research who will and will not receive the results. Moreover, a prior agreement is struck with management of the organization that participation is voluntary and that each employee has the right to decline to participate or to withdraw at any time without being punished. Also, each employee participating in the research must consent before the researcher can use the information that the employee has provided in the research. If the organization does not agree to these procedures, then the I/O psychologist should look for an organization that will. Psychologists who violate the ethical standards can be reported to ethics committees at the state and national level.



## Academic Research vs. Practical Realities

Some I/O psychologists work in industry, some in consulting firms, and some in universities. The demands placed on them differ, and as a consequence, their views of how to best conduct research can differ considerably. Psychologists in industry are under pressure to come up with answers to problems. The psychologist in academia is expected to conduct careful, programmatic research and to avoid rash conclusions. The former may view the latter as ivory tower eggheads with little conception of the real world. The latter may view the former as flimflam artists willing to sell any method that can make a buck regardless of the scientific evidence. Such stereotypes are quite unfortunate, and while they do occur, they are not widespread. Indeed, one of the major strengths of I/O psychology is the diverse mixture of practitioners and academics that contribute to the storehouse of knowledge. Nevertheless, there are differences between the ideal scientific model and the way investigators often must conduct research in organizations.

Virginia Boehm (1980) has provided a thoughtful comparison of the two approaches. In contrast to the academic model of research, research conducted within an organization can follow a much different course (see figure 3.12). In the first place, the topic is often not chosen by the investigator but is prompted by an organizational problem, which the investigator is asked (or ordered) to solve. After some analysis, a solution is proposed (a training program, a new performance appraisal system, etc. and a study is designed to evaluate the solution. The investigator often has to persuade the organization that the research is worthwhile and even after conducting the study must sell the organization on the benefits of the proposal. Investigators often have to go to Herculean efforts to maintain rigorous experimental control when conducting research in an organization and the effort more often than not is frustrated by management's desire to get on with it and come up with a solution. The solution is not to give up on standards of scientific research, but instead to open the method to creative solutions. Well worth remembering is P. W. Bridgman's dictum that "the scientist has no other method than doing his damndest" (Kaplan, 1964, p. 27).

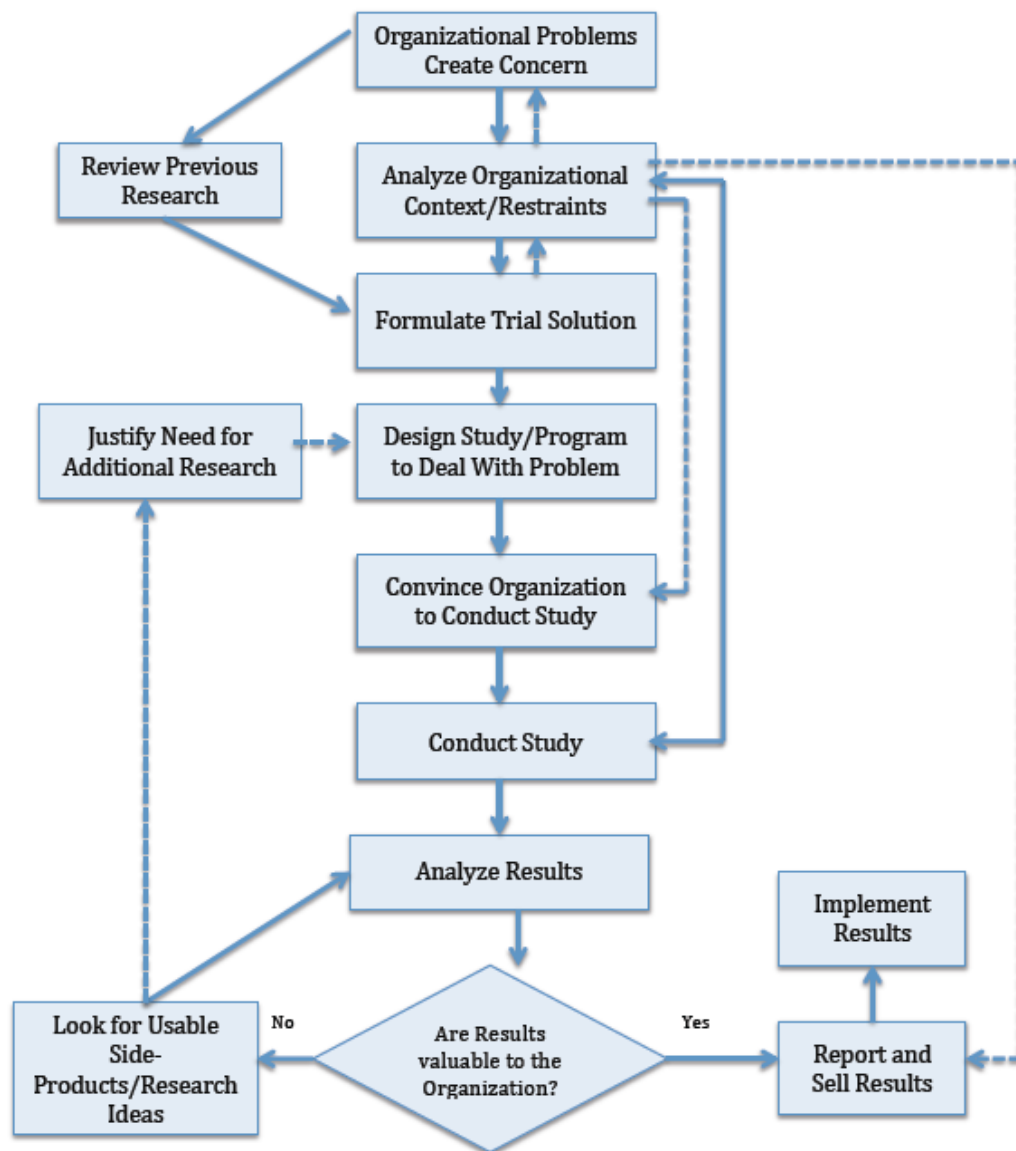


Figure 3.12: The Process of Conducting Research in Organizations

#### Points to ponder

1. A large proportion of the public is skeptical of scientific research and instead rely on the nonscientific sources of knowledge. Take, for example, the germ theory of disease. By the late 1800s this theory was well established but many people still rejected the theory and the scientific research validating it. Even physicians in the 1800s rejected germ theory and ridiculed the idea of having to wash their hands before surgery. Why do people find it so hard to accept scientific research and instead adhere to notions that ultimately prove false?
2. Search the internet, magazines, newspapers, TV, and the radio for media reports of research on human behavior. How would you evaluate what was done and was claimed?

based on what you have read in this chapter?

3. Randomness (either in the form of random selection or random assignment) is an important concept in scientific research. Provide examples of its importance from the discussion of statistics, measurement, and research strategies.
4. What are some of the research questions pertaining to human behavior at work and in organizations that you think can only be researched in the field using correlational methods? Why can't true experiments be conducted on these topics? On other hand, identify questions pertaining to human behavior at work and in organizations that can be the focus of true experiments?
5. Must a science accomplish all three goals: prediction, explanation, and control? Can you provide examples from established sciences in which one or two were accomplished but not all three?
6. Some have argued that generalizability is at the heart of both construct validation and the assessment of reliability. How is generalizability an important concern for both topics?
7. Why is reliability a necessary precondition for criterion-related validity but not vice versa? Can you provide examples?
8. Compare and contrast the concepts of correlation and prediction.
9. Explain why could argue that internal external, external validity, and reliability are all subsumed under the notion of construct validity.
10. Compare and contrast the steps one must take in rigorously applying the scientific method with research that often occurs in organizational settings. Is it ever worthwhile to conduct research even though you cannot adhere to all the scientific standards? Why or why not?

## Conclusions

This chapter admittedly makes for difficult reading and is probably not the favorite topic for many of the readers of this text. It is only natural to search for answers, and a message of this chapter is that science is the best way to seek these answers. But the primary lesson of this chapter is that the journey of a scientist is never really completed.

Obviously those responsible for making decisions have to act and cannot engage in a lifelong search. They must make a decision based on the best available information even though this information may be incomplete or even flawed. There is a tension between the science of I/O psychology and the practice of I/O. The trick is living with the tension and maintaining a creative dialogue between the two. The present chapter reviews a variety of techniques and tools that can be used in scientific research. All of these techniques and tools are limited in some way. To build a valid body of knowledge in I/O the research needs to employ multiple methods so that weaknesses of an approach can be balanced with the strengths of other approaches. In the end, one can only hope that the scientist does his or her best in the pursuit of knowledge.

## CHAPTER 4: WORK MOTIVATON



## Introduction

A lack of motivation is a common explanation for poor performance in organizations. Take, for example, this posting from a supervisor of 60 employees providing cardholder account services:

“I have never seen a group of employees like this..... I organized two Town Hall meetings. In each meeting I laid out a number of new practices that will make our work faster and more accurate. The employees sat in their chairs and shot me evil looks. No one spoke up. I am beyond frustrated.... My take is that the employees are lazy. They don’t want to work.” (R. Liz, “Can anything motivate my lazy employees?”, June 28, 2015, Forbes, <http://www.forbes.com/sites/lizryan/2015/06/28/can-anything-motivate-my-lazy-employees/#246999a54da0>)

A lot of the concern about lack of motivation is aimed at younger workers as seen in the comments by the chef at a leading restaurant in Great Britain. “The 38-year-old TV chef – who has created thousands of UK restaurant jobs in the last five years – reckons most of our youngsters are not up to a 46-hour week. Jamie said: ‘I think our European immigrant friends are much stronger, much tougher. If we didn’t have any, all of my restaurants would close tomorrow’” (<http://www.mirror.co.uk/news/uk-news/jamie-oliver-blasts-young-britons-2231664>).

These sentiments are echoed by the owner of restaurant in the United States: “many younger workers do not accept that it takes long, concerted effort to build a career. ‘They’ve been blessed with parents and grandparents laying the foundation to give them a better life,’ he said. ‘But that hunger is not really in them. But the desire for success is. They want to make money but don’t want to put in the required hours or effort’ “(I. Shapira, April 3, 2010, *Millennials accused of lax work ethic say it's not all about 9-to-5*, Washington Post).

A frequent accusation is that a lack of motivation to work hard on the job is a driving force behind the economic success or failure of entire nations. Take, for example, the European debt crisis. One commentator wrote “people in prosperous northern European countries “believe in a simple moral formula: effort should lead to reward as often as possible ... self-control should be rewarded while laziness and self-indulgence should not.” European countries such as Italy, Spain, and Greece lack this work ethic and as a consequence have failing economies. ([http://www.nytimes.com/2011/12/02/opinion/brooks-the-spirit-of-enterprise.html?\\_r=0](http://www.nytimes.com/2011/12/02/opinion/brooks-the-spirit-of-enterprise.html?_r=0))

What do you think of these observations? Have you ever experienced co-workers or subordinates who seemed lacking in work motivation? Do you think younger workers lack a work-ethic and that immigrants are more motivated to work hard? Do you agree that differences in the economic success of countries are the result of differences in the motivation of the citizenry? In observing people at work on specific tasks, it is obvious that some people work harder than others. But why? Explanations that use work motivation to account for why things go right or wrong typically rely on vague



commonsense notions about what it means to be a hard worker or a lazy worker. They build on stereotypes based on nationality, age, and race, but provide little insight and few solutions. To improve on these commonsense notions, psychologists have attempted to clarify the behavioral, cognitive, and emotional processes involved in work motivation. The present chapter focuses on the theory and applications that are the products of this work.

### Key behavioral indicators of motivation

So what is motivation? Similar to most psychological constructs, you cannot directly observe motivation but instead must infer it from behavior. Take a look at this short collection of clips from the movie Rocky. In case you do not remember, Rocky Balboa is a fighter who is over the hill, and apparently at the end of his career, but is chosen to fight the world heavy weight champion. Based on the clips, what are the behavioral indicators of Rocky's motivation?

(<http://www.youtube.com/watch?v=45FfHlzRqTI&feature=related>)

Psychologists have defined motivation in terms of three behavioral characteristics.

1) Direction. The decisions that are made among alternative courses of action are one indicator of motivation. In the movie Rocky must decide whether he will seriously try to fight the champion or just walk through the rounds and collect his money. He chooses to make it a serious fight. Highly motivated behavior is always characterized by some decision on the part of the person to go in one direction and to not go in other directions. The fact that Rocky is in the gym or running in the streets as opposed to drinking in a bar or going to the movies provides additional evidence that he is highly motivated to achieve his goal...going the rounds with the heavyweight champion of the world.

2) Effort and vigor. Another indicator of motivation and the one we most often associate with motivation is effort exhibited in the pursuit of the goal. Rocky shows vigor and intensity in his training for the fight. On physical activities this is shown in the flex of muscles, the strain in facial features, sweat, and grunts and groans. It is also shown in the time spent on the activity, the amount of workload, and speed of working. Effort is also apparent on cognitive tasks. A person involved in solving a difficult task may not sweat, but you can probably see the strain, vigor, and intensity of the efforts to solve a problem.

3) Persistence. A third indicator is the persistence in pursuing the goal. Rocky does not give up, in the face of the pain, the frustration, and the doubts of others that he can succeed. Rocky keeps at his workouts to the point of possible exhaustion despite the difficulty of the tasks and setbacks.

There are other characteristics of motivated behavior, but psychologists attempting to measure how motivated a person is to work on a task or achieve a goal have used these as the primary indicators.

## Performance vs. motivation

A few more terms deserve some attention before diving into the topic of work motivation. One distinction that the reader should keep in mind is that between performance and motivation. The level of performance on the task is often used as an indicator of motivation, but motivation is not the same as performance. Although there is usually a correlation between motivation and performance, just because a person is highly motivated does not mean that the individual performs at a high level and low motivation does not necessarily translate into low performance. As described in this formula, performance is a function of not only motivation but also the ability of the individual and the knowledge of the person.

$$\text{Performance} = \text{Ability} \times \text{Motivation} \times \text{Knowledge}$$

The multiplicative nature of the combination above reflects the fact that if any one of these three determinants is zero, it can cancel out the other two. For instance, even with an extraordinarily high level of motivation, persons totally lacking the ability and knowledge to do the task are likely to perform poorly. It is more appropriate to look for the more direct and immediate signs of motivation in the form of choice, effort, and persistence rather than an indirect and more distal indicator such as performance. Having made clear this distinction, the reader will see research in this chapter that measured performance as the primary indicator of motivation. If the task is so simple that everyone possesses about the same ability and knowledge, this is not a problem. The more complex the task, the less one can rely on performance as an indicator of motivation. On a complex task differences in knowledge and ability, in addition to motivation, are causes of performance.

## The internal focus of motivation theory

Another important consideration to keep in mind is that motivation refers to forces within the person. This chapter reviews a variety of psychological constructs that motivation theorists propose as mediators of the effects of external events such as the work environment and outcomes in the form of direction, effort, and persistence of goal-directed behavior. A personal need, such as a need to achieve or gain power, could explain why a person chooses to work overtime. An expectation of reward may keep a salesperson making cold calls despite repeated failures. A belief about what is fair and unfair may motivate a person to restore justice in a situation. A sense of self-efficacy and competence may spawn vigorous work activity in the absence of any obvious reward for these actions. Each motivational construct presumes that there is something inside the person that accounts for behavior.

## The interaction of the environment with internal forces

An understanding of motivation requires more than internal forces. One must also consider the environment in which the person is pursuing the goal. Specifically,

understanding motivation requires a consideration of how the environment interacts with internal to reinforce or redirect that goal directed behavior. A person who has a need to achieve may reevaluate his goals to go to medical school after receiving poor grades in biology and chemistry. A worker with a high need for social affiliation and approval may decide to seek friends outside the work place and to become less of a team player after other work group members criticize him and give him the cold shoulder. A salesperson may, after repeated failures to make a sale, lower her expectations and spend less effort making cold calls. In each example, the interaction of personal factors with environmental factors constitutes a motivational system (Steers & Porter, 1991). This chapter takes a systems orientation by examining targeted personal characteristics, such as achievement needs, environmental characteristics, such as incentives provided by the organization, and combinations of both personal and environmental characteristics, such as how people with different achievement needs are affected by organizational incentive systems.

### Seven practical questions

This chapter organizes the discussion of work motivation around seven practical questions a person would ask in attempting to motivate workers to pursue a goal and to pursue this goal with vigor and persistence.

1. What are the goals of employees and the characteristics of these goals?
2. What are the consequences of employee efforts to achieve these goals?
3. What do employees expect to occur if they try to achieve the goals? Will they succeed in performing the task (self-efficacy expectations) and what are the outcomes they expect from succeeding on the task (outcome expectancies).
4. Do the consequences of attempts to achieve goals fulfill important needs and are they valued?
5. Do employees perceive that the efforts of management to motivate them are fair and just?
6. Is the work environment relevant to the self-concepts and self-evaluations of employees?
7. Is the behavior shown by employees in the pursuit of goals intrinsically or extrinsically motivated?

These questions constitute the steps we would take in attempting to increase the motivation of workers. The first step is to set a goal for the workers to pursue. The second step is to provide consequences in the form of rewards and punishments for actions taken in the pursuit of the goals. The third step is to ensure that the workers have high expectations for accomplishing these goals. The fourth step is to examine the needs of the workers and to ensure that hard work in the work environment pays off in fulfilling important needs. The fifth consideration is whether workers believe that they are treated fairly and justly. A sixth consideration is whether employees believe that the pursuit of task goals can allow them to fulfill valued self-ideals and boost their self-esteem. The final consideration is whether the direction, effort, and persistence of the behavior shown by workers in pursuit of goals reflect intrinsic or extrinsic motivation. Each section will

review the theoretical framework for the question that is posed and the empirical research that has tested the theory. The implications of both theory and research for application in organizations are also discussed. The last topic covers recent efforts to combine the various motivation theories into larger, integrative theoretical frameworks, or meta-theories.

### What are Employees' Goals?

It is meaningless to ask "Are employees motivated?" Of course they are motivated. The only unmotivated human is a dead human. A more meaningful question to ask is "What goals are employees motivated to achieve?" Especially important is the question of whether their personal goals coincide with the goals of management and the organization. One must begin with goals because motivation is defined as goal-oriented behavior and the characteristics of the goals that people pursue are crucial determinants of the vigor and persistence they show in pursuit of organizational objectives.

An example of a practical intervention that builds on setting specific, attainable goals to achieve some desired outcome is Weight Watchers. Its members set weekly goals (for example, a two-pound weight loss) that are attainable, instead of simply attempting to lose weight. These weekly goals are also much less psychologically distressing than the thought of having to lose 40 pounds to achieve long-term goal. Similarly, time management experts recommend the setting of specific, attainable goals for each project. Large or long-term projects divided into smaller projects, each with its own goals. An example is writing a term paper for a class. Because many students consider writing a term paper a difficult task, they often postpone starting the paper until just before it is due. The consequences are frequently a poorly conceived and written paper that receives a low grade. Time management experts suggest that dividing the task of writing the paper into discrete, manageable portions and set specific goals for their attainment. First, early in the semester, plan to go to the library to research the topic; set specific time limits for this first phase. Then, draw up an outline that describes the various sections of the paper. Again, allow only a certain amount of time for accomplishing each section. Finally, following the outline, write one section of the paper at a time, reviewing and editing the old sections when writing the new or later ones. This last phase probably consumes the most time. A helpful secondary goal would be, for example, to work on the paper at least one hour every two days. Writing the term paper in the manner just described, will produce a carefully conceived and written product and little, if any, stress.

### Why goals improve performance: Mediators of goal effects

A variety of practical interventions ranging from Alcoholics Anonymous, Weight Watchers, Time Management, and Management by Objective (MBO) have achieved impressive results using the goal-setting process. Goal setting really works! Not surprisingly, the potential usefulness of goal-setting techniques also attracted the attention of industrial organizational psychologists such as Edwin Locke (1968), who proposed goal setting as a theory of work motivation. In goal-setting theory, conscious intentions motivate the person to do and act according to plans. Events in the external

environment, such as the successful completion of a college course or a potential promotion for superior work performance, trigger a cognitive process in which the person evaluates the events against his or her values. Values in this context refer to what the individual wants to attain. If the person's values are not satisfied by the external event, he or she will experience a negative emotion. The outcome of this emotional experience is a conscious intention directed toward the completion of a goal. Suppose Meredith's supervisor criticizes her poor job performance. Because Meredith places a high value on work, she is very unhappy with her negative evaluation. Consequently, she sets a goal to improve her job performance before her next six-month review. For Locke, the intentions and thoughts of the person are the primary mediators in the process by which goals influence behavior. Perhaps the most inspiring illustration of the use of goals to motivate was President John Kennedy's speech at Rice University in 1962 in which he set as a specific, difficult goal getting a man on the moon within the decade (<http://www.youtube.com/watch?v=g25G1M4EXrQ>).

There are four primary mechanisms or mediators through which goals impact performance, according to Locke, and we can see each mechanism at work in Kennedy's speech and the subsequent efforts to get a man to the moon.

First, goals direct the attention and effort on the tasks that will accomplish the goal. There were a lot of other potential goals that could have captured the attention of the U. S. public at the time of Kennedy's speech, but in setting a goal to put men on the moon, he focused the attention of the public on this one objective. The reader has probably experienced this when a deadline for a project is coming. The completion of this project becomes the sole focus of attention as the deadline approaches.

Second, goals energize leading to greater physical and cognitive effort on the tasks related to accomplishing the goals. President Kennedy's speech was clearly inspiring in its vision and it triggered efforts of educators, legislators, parents, and others to accomplish the objective.

Third, goals lead to persistence on the tasks. When a goal is set, individuals are more likely to keep working at reaching that goal even when they fail. Without a goal, they may quickly give up. The space program was faced with many setbacks including a disastrous event on the launch pad that led to the death of three astronauts. With the goal of putting men on the moon within the decade, the efforts continued even in the face of the difficulties.

Fourth, goals stimulate the person to think about strategies for achieving the goals. The presence of goal triggers cognitive processes in which the individual thinks about ways to reach the target with the least effort and this, in turn, leads to higher performance than an absence of a goal. The clear, difficult goal set by Kennedy stimulated a huge amount of intellectual activity as NASA's engineers, scientists, and astronauts attempted to figure out strategies for achieving the objective.

What goal characteristics influence motivation and performance?

The simple elegance of goal-setting theory has captured the attention of many organizational researchers over the past twenty years; so much, in fact, that goal setting is currently among the most widely researched and accepted theories of work motivation. The research has identified several characteristics of goals that provide leverage to the employer attempting to motivate employees.

Goal difficulty and specificity. More than 50 years of research and hundreds of experiments (Latham, Mitchell, & Dossett, 1978; Latham & Steele, 1983; Locke, 1968; Locke, Shaw, Saari, & Latham, 1981) have supported the following basic propositions stated in goal-setting theory:

Specific, difficult goals lead to higher performance than no goals, easy or moderate goals, or "do your best" goals.

Approximately 90% of all laboratory and field studies have confirmed this prediction. Before the goal can lead to optimal results, a person must not only develop conscious intentions of achieving the goal and translate those intentions into behavior, but he or she must also set difficult and specific goals. Without these concrete guideposts, people do not have enough structure to perform optimally. There are very few universal laws that apply to human behavior, however, and as we will see there are limits even to this strongly supported proposition.

Knowledge of results (feedback). A goal provides a target that the person can use to gauge the success of his or her efforts. Feedback on how close the person has come to meeting the goal (goal discrepancy feedback) energizes the person and provides information on task activities that needed to bring the performance in line with the goal. Although goals without feedback may still increase motivation, the addition of feedback to the mix has a large and beneficial effect on performance. This is especially true on complex tasks where the effect of goals + feedback more than doubles the effect found for goals alone (Neubert, 1998).

Contemporary researchers have attempted to examine in some detail the efficacy of different types of feedback. Researchers in one experiment explored the differential effects of two types of feedback (Vance & Colella, 1990). Goal discrepancy feedback informed the participants of how they were performing relative to the goal that they had been assigned. Performance discrepancy feedback informed them of how their performance had changed either in a negative or positive direction relative to their performance on the previous trial. The experiment was designed so that participants received increasingly difficult goals and, as a consequence, increasingly negative goal discrepancy feedback. Although the participants were given both goal discrepancy and performance discrepancy feedback after each task trial, the authors found that the participants increasingly focused their attention on the performance discrepancy feedback as they experienced increasingly negative goal discrepancy feedback over the trials. These findings bring attention to the fact that there are usually multiple sources of feedback in a task environment and feedback on goal discrepancy is only one of these.

One cannot assume that the focus of attention will remain on the goals that were set for the employee but may instead shift to other standards such as past performance. These two studies illustrate an exciting trend in goal-setting research that may enhance its usefulness in organizations.

Participation in goal setting. Another important characteristic is the extent to which the employee participates in the setting of a goal. The readers may remember occasions in which they set a goal for themselves and other occasions in which someone else set the goal for them. In the latter instances, the person setting the goal may have sought their input or may have simply told them the goal without any attempt to explain the rationale. How did the response in the full participation situations differ from the response in situations in which the goals were assigned without participation?

A human relations approach to management suggests that participation enhances the commitment of the person to the goal and leads to more effort than assigning the goal without participation. Contrary to this assertion, research has shown that the relationship of participation is more complex and depends on other factors. In one series of experiments examining the role of participation, the researchers found that participants whose supervisor assigned a goal exerted less effort on the task than participants who participated in the goal setting only when the supervisor simply told the employee the goal without explaining it (Latham, Erez & Locke, 1988). When there was an explanation for the goal, there were no differences between people who participated and those who did not on the effort they exerted.

This is not the end of the story on the influence of participation but these findings show is that there is more than one component to participation. One very important component is the extent to which supervisor justifies and explains the decision. As shown in this research, in some instances a simple explanation is sufficient to ensure that a goal stimulates a higher level of motivation. Another very important component of participation that is often related to justification is the extent to which the participation facilitates the generation of strategies for accomplishing the goal. For instance, if a supervisor and employee or a group of employees discuss the goal, they may derive various ways of best doing the tasks and this may improve performance.

Of course, whether participation in goal setting benefits participation depends to a great extent on the quality of the strategic planning that is associated with the participation. In an experiment involving 16 simulated organizations, the researchers evaluated the influence of the actual time spent planning and the quality of the planning process (Smith, Locke & Barry, 1990). Planning quality was measured by the presence of such factors as the development and communication of action plans. The researchers found that more time spent planning led to higher performance only if the planning quality was high. These studies suggest that the quality and amount of planning activity are crucial mediators of the impact of participation in goal setting on performance. If participation stimulates high quality planning it is likely to benefit performance, but if it stimulates poor quality planning, it may well hurt performance.

What moderates goal effects?

Remember that a moderator variable is a variable that influences the relationship between two other variables without necessarily causing either of the other two variables. A mediator is a variable that “comes between” and accounts for the relationship between two variables. The mediator is an outcome of the independent variable and, in turn, causes the dependent variable. The distinction is not always entirely clear, but research has identified several variables that appear to serve as important moderators of the effect of goals on performance and motivation.

The research setting: laboratory vs. field. One meta-analysis of goal-setting research showed that goal-setting performance effects were stronger in laboratory than in field studies (Tubb, 1986). One possible explanation is that participants were more willing to accept and work toward harder goals in short-term situations, such as laboratory experiments, than in field research. Like equity theory research, goal-setting research has been conducted mostly in laboratory settings with student subjects performing simple tasks, such as listing novel uses for a coat hanger or paper clip. Subjects in these experiments are typically asked to perform the task over several trials with some subjects assigned goals without participation and others participating in the setting of the goals. In the lab experiments, the duration of the task performance is very short, whereas in field settings goals are frequently set for weeks or months.

Despite the difference in the strength of goal setting effects in lab and field settings the reader should not conclude that the lab research is invalid. One would expect stronger effects in the lab because of the greater control over extraneous variables. Indeed, this is the strength of the lab --- i.e., it allows a stronger test of theory as the result of greater control over variables. The lab allows us to determine whether goal setting “can” affect performance but does not allow a good basis for determining the actual strength of the effect in the field. One can always expect the effects found in the lab are not as strong in the field for the obvious reason that there is more going on in the field.

Goal acceptance and commitment. For a goal to energize, focus attention, lead to persistence, and generate task strategies, Edwin Locke and his associates (Locke, Latham & Erez, 1988) propose that individuals must initially accept the goal and then become committed to achieving the goal. Acceptance and commitment to the goal are moderators of the effects of goals on performance and motivation to the extent that they result from factors other than the goal itself. It is feasible one could view them as mediators if the goal itself led to the level of acceptance and commitment observed. This chapter treats them as moderators. Among the factors that seem integral to forming a commitment to the goal are self-efficacy, goal importance, and monetary rewards:

1. Self-efficacy or the expectancy that if I try I can achieve the goal. Increasing the self-efficacy of the employee that he or she can achieve the goal is an important strategy for increasing commitment to the goal. If self-efficacy is low, the employee is likely to reject the goal or show a low commitment to accomplishing it. Supervisors can do a lot to



increase self-efficacy by communicating the expectation that the worker will achieve the goal and possibly inspiring the worker to make the attempt.

2. Public commitment. Another strategy for increasing goal commitment is to have the participant make a public commitment in which he or she states to others the goal and the intention of achieving the goal.

3. Monetary rewards: Still another way of gaining commitment is to provide monetary rewards for accomplishing the goal. An important factor to consider, however, is the difficulty of the goal. If a goal is set that is too difficult, providing monetary rewards actually can hurt performance (Lee, Locke & Phan, 1997). The employee apparently becomes less committed to the goal once he or she perceives that goal accomplishment is unlikely. It is also possible that there is a boomerang effect in which the person exerts even less effort than would have occurred without the goal and the monetary inducements.

Commitment to goals moderates the effect of goal difficulty on performance according to the results of one meta-analysis (Donovan & Radosevich, 1998). In other words, performance increased with goal difficulty more for persons with high commitment to the goal than for those who had low commitment. However, the effect was quite small and accounting for only about 3 percent of the variance in performance. The authors of this meta-analysis suggested that researchers need a more unified conceptualization of goal commitment and better measures of this construct.

The nature of the task. The strength of the goal-setting-performance relationship is affected by contextual factors including the complexity of task performed, the extent to which the person must coordinate with others, and the stage of learning the task.

1. Task complexity. Stronger goal effects are demonstrated with simple tasks than with complex tasks or novel tasks that allow multiple, alternative strategies. Specific, difficult goals appear to enhance performance on simple tasks but that this effect does not appear to extend to novel tasks that allow multiple, alternative strategies. In one experimental demonstration, undergraduate students performed a stock market prediction task and were given either a general goal (e.g., “do your best) or a specific, difficult goal (Earley, Connolly, & Ekegren, 1989). Participants assigned specific, difficult goals engaged in more strategy search, but the additional search time did not improve performance on this complex task. The researchers concluded that whereas specific, difficult goals do improve performance on simple tasks, they are not as beneficial on complex tasks.

This was also the conclusion from a meta-analysis of goal-setting research that assessed the moderating effects of task complexity by examining whether the type of task affected the goal-setting-performance relationship (Wood, Mento, & Locke, 1987). Goal-setting effects were strongest for easy tasks (reaction time, brainstorming) and weakest for the most complex tasks (business game simulations, scientific and engineering work). The findings of this review are summarized in figure 4.1. The mean corrected effect size (or Cohen’s d) along the Y-axis is the difference in performance when the goal was specific

or difficult as opposed to easy or general. The larger the  $d$ , the stronger the typical goal effect, i.e., the more specific, difficult goals led to higher performance. As shown in the figure, the effect of goal diminished with increasing complexity of the task.

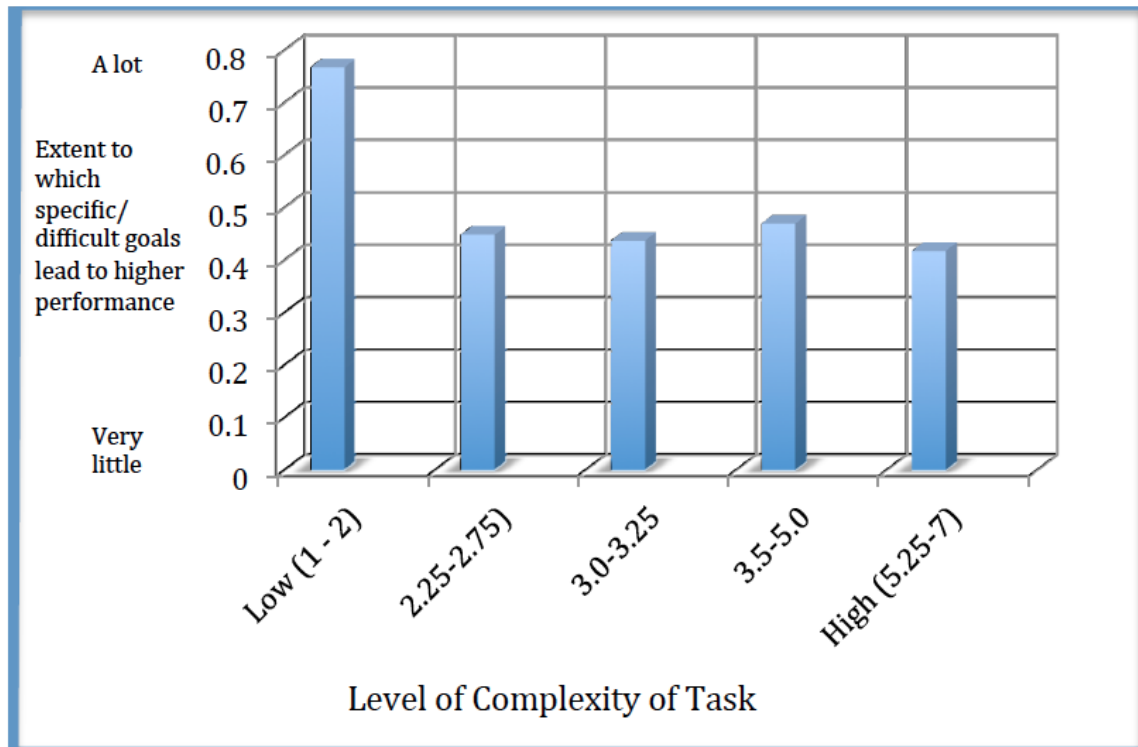


Figure 4.1: The Moderating Effects of Task Complexity on the Effects of Goal Specificity and Difficulty on Performance.

2. Required cooperation. In a simple but clever laboratory experiment, people who used individual goals on a task that required cooperation performed more poorly than those who used group goals (Mitchell & Silver, 1990). In this case, the setting of individual goals led to more competition and less cooperation. Because success required cooperation, the competition led to less effective performance on this task. The researchers recommended from these findings that when the task requires cooperation, group goals are likely to encourage collaboration and are preferred to individual goals.

3. Learning vs. performance stage of task. Stronger effects of difficult, specific goals are also obtained when the person has mastered the task (Kanfer, Ackerman, Murtha, Dugdale & Nelson, 1994). Setting difficult, specific goals when the person is learning a task may hurt performance. The same thing probably occurs when difficult, specific goals are set for complex tasks. When one has not yet mastered the task, it is important to stay flexible and learn from mistakes. A very specific, difficult goal may lead to a rigidity and unwillingness to experiment.

Individual differences. Not everyone reacts in the same way to goals. The impact of goal setting on behavior and performance is moderated by Individual differences among

employees, such as personality and ability characteristics. High task-ability people reliably outperform low task-ability people in response to increases in goal difficulty. Hollenbeck, Williams and Klein (1989) examined the influence of personality characteristics on commitment to difficult goals (see figure 4.2). They found that whether participants set their own goals or others assigned the goals another made little difference if the person was low on need for achievement, but self-set goals led to higher performance than assigned goals for those high on need for achievement. The finding that high need achievement persons are motivated to achieve task success by self-set goals is consistent with the preference of high need achievement persons for situations in which they have personal responsibility and control. Another individual difference variable that appears to predict success in academic domains is GRIT (Duckworth & Gross, 2014). This is the propensity to set long term goals and then exhibit perseverance and vigor in the pursuit of these goals. One could hypothesize that those higher on GRIT will show larger increases in effort, persistence, and performance in response to challenging goals than those lower on GRIT. To my knowledge this has not yet been tested.

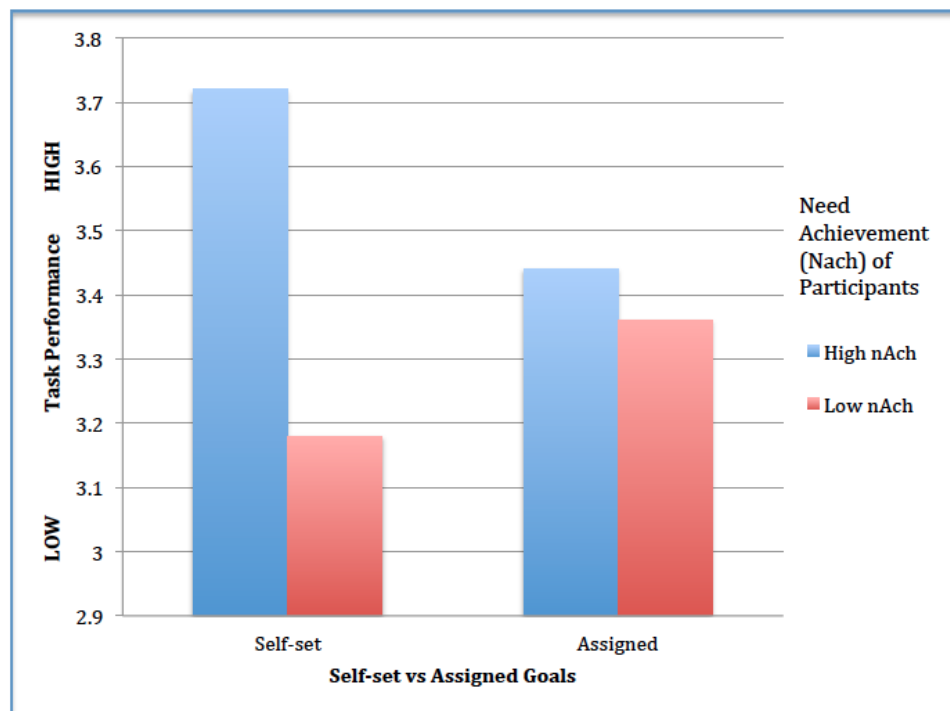


Figure 4.2: Moderating Effects of Need Achievement on Self-set vs. Assigned Goals

All things considered, goal theory is a powerful framework for explaining motivation in the work place. In addition to its theoretical benefits, goal theory provides an obvious tool for motivating employees. There are moderators of the effect, however, and goal setting is more powerful in some circumstances than in others.

## Points to ponder

1. Why are specific, difficult goals so often effective in increasing motivation and enhancing performance?
2. What are the factors that can prevent specific, difficult goals from boosting motivation and benefitting performance?
3. In light of the research on goals, what would you do to ensure that goal setting will boost motivation and improve performance?
4. Some supervisors are reluctant to set specific goals and to openly state that these goals will serve as the standards for evaluating performance and providing rewards. Why the reluctance?
5. Can goals become a substitute for action? Under what circumstances might this occur and why?

## What are the Consequences of Employee Behavior?

Self-set or assigned goals are the first step in motivating another person. Once the goals are in place, the next step is to make sure there are consequences for achieving or not achieving these goals. That the environment affects behavior by means of consequences is not surprising. The readers no doubt can recall many instances in which outcomes originating from the outside world influenced their behavior. For example, if the skies are dark and cloudy tomorrow, they will probably decide to take an umbrella or raincoat when departing for work or school. They do this because of past situations in which there were similar weather conditions and the consequence was a soaking due to a lack of an umbrella. In response to cloudy, threatening skies they carry an umbrella because of the rewards for carrying an umbrella in these situations and negative outcomes for not carrying one. Similarly, if a company's policies provide negative consequences for tardiness, employees are more likely to attempt to show up on time for work than if the company lacks such policies. Again, they do this because there are consequences of tardiness that they want to avoid and other consequences for being punctual that they desire.

Psychologists who take a radical behavioristic approach (this approach was discussed in the history chapter the pioneers of this school of thought such as John Watson) systematically investigate how aspects of the environment influence human behavior. The radical behaviorist believes that psychologists should study only observable behavior, not feelings or affect, and that behavior is shaped solely by environmental factors. The reader is probably thinking at this moment, “wait a minute” ...you just told me that motivation dealt with internal factors. Yes, a strict behavioristic approach is in some ways an anti-motivation approach because it eschews any mention of constructs such as needs, expectations, intentions, and the like. Few psychologists these days adopt a radical behavioristic approach. Nonetheless, such radical behaviorists as Watson and Skinner contributed greatly to understanding of how consequences play a role in motivation even though they generally ignored internal factors. The application of behavioral principles to shaping behavior in real situations is called Behavioral

Modification or BMod for short. Here are some of the major distinctions and learning principles that are at the core of BMod.

### Types of conditioning

The behavioral psychologist recognizes two basic learning processes: classical conditioning and operant conditioning. Classical conditioning (Michael & Meyerson, 1962; Pavlov, 1902) is concerned with involuntary or reflexive behavior and is not directly applicable to our discussion of work motivation. However, researchers and practitioners have applied operant or voluntary conditioning quite broadly in work settings (Michael & Meyerson, 1962; Skinner, 1969). In operant (or voluntary) conditioning, rewards (and punishments) are contingent upon the subject's response or failure to respond (i.e., they immediately follow the response). If the door-bell rings, one will probably answer the door. The reason for this action is that going to the door and opening it is shaped with operant conditioning; from many prior experiences, one knows that someone is on the other side of the door. The stimulus is the ringing doorbell; the response is answering the door; and the positive consequences are greeting and visiting with a friend or acquaintance. The decision to answer the door is always totally voluntary and under control. The ringing doorbell does not automatically elicit walking to the door and opening it. Rather, the ringing doorbell sets the stage and acts as cues for the acts of going to the door and opening it. The actual response is under your control and voluntary, not involuntarily evoked as in classical conditioning. A common example of operant conditioning in a work setting is the administration of praise by a supervisor for a task well performed. The worker completes a report in a timely and thorough manner and is praised by his supervisor. This sequence of events increases the probability that the worker will decide to respond similarly when preparing future reports.

Operant conditioning. In using operant conditioning, three types of outcomes or consequences are distinguishable: positive reinforcers, negative reinforcers, positive punishments, and negative punishments (see figure 4.3).

Based on the research, behaviorists clearly advocate the use of positive reinforcement and warn against both negative reinforcement and both positive and negative punishment. In positive reinforcement a positive consequence, such as praise, follows the desired response and increases the frequency of the response. Realize that it is the increase in the probability of the response as the result of giving the reinforcer that defines positive reinforcement, not the desirability of the reinforcer. Check out, as a humorous interlude, this short illustration:

[http://www.youtube.com/watch?v=9UB0NHgK\\_Bc](http://www.youtube.com/watch?v=9UB0NHgK_Bc)

Negative reinforcement refers to an increase in the frequency of a response as the result of the removal of a negative consequence. If the readers eat with their hands rather than using a spoon and fork, a negative consequence is criticism from others. When the reader starts using the silverware, the criticism stops. The removal of the negative consequence....criticism....increases the probability of eating with silverware. Punishment, on the other hand, involves decreasing the probability of an undesired

behavior by providing a consequence. With negative punishment, a noxious consequence is provided and is only withdrawn once the person stops doing what is being punished. With positive punishment, a negative or aversive outcome is administered until the person stops doing what is being punished. An example of positive punishment is a supervisor reprimanding a worker (or withheld a pay raise) because the worker did not produce a timely and thorough report. With negative punishment a positive outcome is withheld until the worker stops the behavior that is being punished. An example of negative punishment is a supervisor who withholds friendly interaction with the worker until the worker starts producing the report.

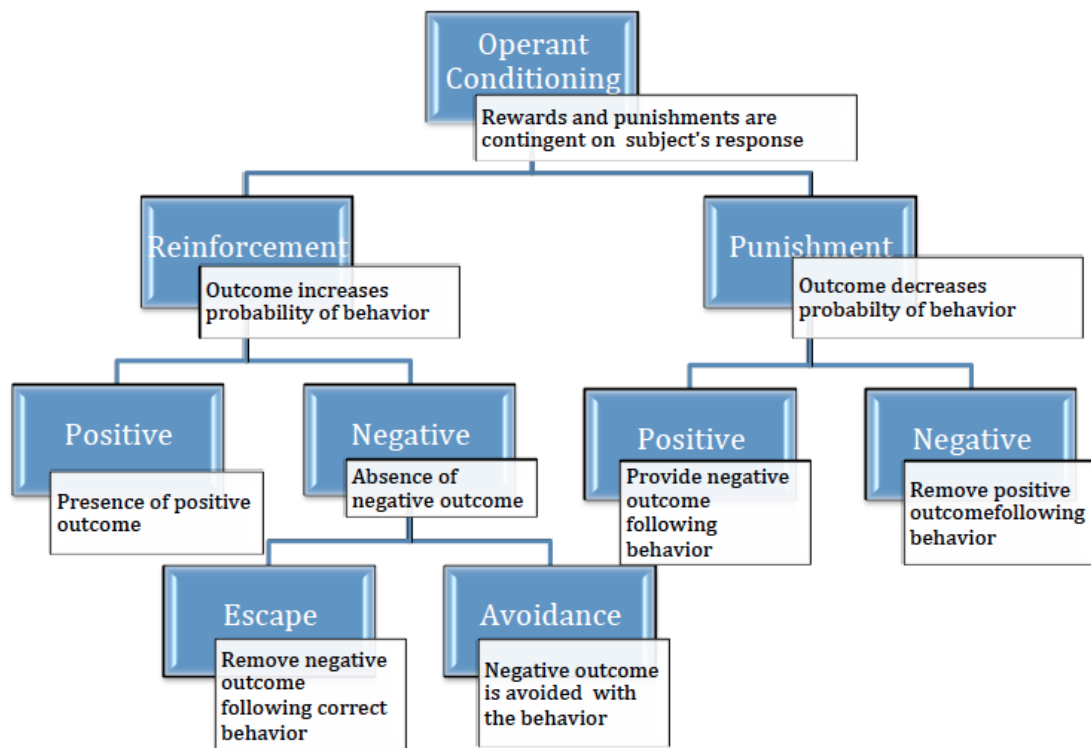


Figure 4.3: Types of Operant Conditioning

Although punishment is commonly used in all phases of life, including organizations (see Arvey & Ivancevich, 1980), behaviorists do not generally advocate its use (Skinner, 1969; Whyte, 1956). Based on the results of research on various types of reinforcement, psychologists generally perceive punishment as not only cruel but also ineffective compared with positive reinforcement. One reason for punishment's ineffectiveness is that it demonstrates to people what they should not do, but does not demonstrate what they should do. Reprimanded employees know what they did was wrong, but they may not know how to correct the behavior. Punishment can evoke negative emotion such as pain, fear, anxiety, and sadness, all of which can interfere with performance. Also, people possess beliefs about what is fair and justice in the treatment of people and the distribution of outcomes. Punishment is likely to violate these beliefs and lead to perceptions of unfairness. If you are still not clear about the distinctions among positive

and negative reinforcement and punishment, check out this video. It also provides a quiz to test your understanding:

<http://www.youtube.com/watch?v=wfraBsz9gX4>

## Schedules of reinforcement

Behaviorists are concerned with different types of schedules of reinforcement and the question of which type can lead to the best performance. For example, to produce optimal performance, should the supervisor praise the employee for every good performance, or only occasionally? As the result of a huge body of research on non-humans, a lot is known about what works with rats, pigeons, dogs, cats, and other critters. Whether the findings generalize to humans is less certain.

There are five basic types of reinforcement schedules. Continuous reinforcement is where reinforcement is provided each and every time the response is emitted. This schedule is always necessary at the beginning of conditioning to establish the connection between the behavior and the contingent outcomes. Once the behavior is learned we can continue with continuous reinforcement or switch to one of four types of partial reinforcement schedules. Partial schedules, which are also called intermittent reinforcement schedules, are either fixed or variable. With a fixed schedule, the reward is received after a fixed time, such as a bonus every six months, or after a fixed number of correct responses, such as after every 1,000 widgets produced. Under variable schedules, the reinforcement schedule is not obvious or predictable because it varies around some average time interval or number of responses. There are four types of partial or intermittent reinforcement schedules.

1. Fixed ratio schedules provide the reward after a specified number of responses and this number stays the same over time. An employee could receive a bonus each and every time she produces 1,000 widgets.
2. Fixed interval schedules provide a reward for the first correct response occurring after a specified amount of time and the interval of time that must pass before a correct response is rewarded stays the same. An employee could receive a bonus for the first widget produced after 40 hours on the job.
3. Variable interval schedules also provide a reward for the first correct response occurring after an interval of time has passed but the amount of time that must pass is kept unpredictable. The schedule is built around a mean amount of time that must pass, but the amount of time that must pass varies randomly across reinforcements.
4. Variable ratio schedule. A reward is given after one or more correct responses with the number of correct responses required for a reward varying around a mean number of correct responses. One example of a variable ratio schedule is a slot machine. It is programmed to pay off for the gambler after a predetermined mean number of attempts with the actual payoffs occurring on a random basis around this mean. Gamblers know that they will eventually win if they keep plugging coins into the machine, but they have no idea of how many coins it will take

before they get a payoff. The casino is required by law to pay off a certain percentage of the money put into the machine by all gamblers using the machine but they program the payoff so that an individual gambler never knows how many coins are needed or how much of a payoff will occur. Anyone who has visited Las Vegas and observed people playing the slots has seen the power of variable ratio schedule. Indeed, we know from the research with nonhumans that once the connection between the response and the reward is established, the variable ratio schedule produces a more permanent, sustained high level of performance than any of the other four schedules continuous reinforcement and fixed schedules, once the connection is learned (Ferster & Skinner, 1957).

When training Fido to fetch, the most effective approach is to start by providing a positive reward for every occurrence of the desired behavior (i.e. continuous reinforcement). Eventually Fido gets the idea and knows that something good is going to happen if he gets the stick and returns it. If Fido continues to receive a reward every time he fetches, it is likely that Fido would slack off eventually, most likely because he is stuffed full of treats. Once the linkage is established, then the reinforcement schedule should switch to a partial schedule. If a fixed ratio schedule is used, where every fifth fetch is rewarded, Fido is likely to get excited as he approaches the fifth fetch but then an immediate slacking off (Fido might be “thinking” ...I have to do this four more times so I might as well take my time). It is also possible to use a fixed interval schedule in which Fido is rewarded for the first fetch after each 10 minutes of fetching passes. Here Fido’s enthusiasm increases as he gets closer to the end of the ten minutes, but then after getting his reward, he immediately slacks off. After all, Fido might think, “why do I need to fetch the stick at all until the ten minutes is almost up?”

A much better reinforcement schedule is the variable interval schedule where you reward Fido for the first fetch after a period of time but you randomly determine the time around some average amount of time. So one might choose ten minutes as the average of amount of time that must pass but the specific amount of time varies around this average. With this schedule, one would get a lot more motivated behavior on the part of Fido. Even better is the variable ratio schedule. In this case, Fido is first given a treat after fetching the stick three times, then after five times, and then after seven times. Assuming there were only three trials, the average number of fetches required for the reward is five  $((3+5+7)/3)$ . Of course, the number of trials typically is much larger and the average fetches required for a reward is computed across all these trials. Any one instance of reinforcement will vary considerably around the average. A variable ratio schedule keeps Fido guessing and on his paws. So he is observed panting with excitement after each throw and asking in doggy language, “Will I get the treat this time”?

If the laboratory research generalizes to the field, supervisory praise should achieve an optimal effect if administered on a variable ratio schedule, which means that reinforcement (e.g., praise) is dispensed irregularly. If the supervisor was attempting to increase safe behavior by a worker using a variable ratio schedule of 5, he or she might praise the employee one time after seeing four examples of safe behavior, another time after seeing nine examples of safe behavior, still another time after seeing two examples



of safe behavior, and so on across all the safe behaviors observed, for an average of one praise per five safe behaviors. A variable ratio schedule establishes a connection between the desired behavior and the consequence and also keeps people on their toes (and Fido on his paws) because they never know when to expect the reinforcement.

As already noted, most of the research showing that partial (or variable or intermittent) schedules achieve more sustained levels of high performance was conducted in the laboratory and much of that research with rats, monkeys, and other nonhumans. Little is known about the potential utility of using the different types of schedules with humans in organizations, and the small amount of organizational research that does exist is inconclusive (Hamner 1991). Some laboratory research shows that a variable ratio schedule is associated with higher performance than continuous reinforcement schedules (e.g., Saari & Latham, 1982). Pritchard and his colleagues (Pritchard, Hollenbeck, & DeLeo, 1980; Pritchard, Leonard, Von Bergen, & Kirk, 1976) investigated the effects of different reinforcement schedules on workers' performance on self-paced tests of job-related knowledge. Results indicated that employees who were contingently reinforced, or paid according to the number of tests they passed, performed better than those who received an hourly wage. Whether they were paid on a fixed or variable ratio schedule, however, made no difference. The missing link when applying reinforcement schedules to humans is that unlike Fido and other non-humans, humans attempt to make sense of reinforcement schedules. In the process, they form impressions about the schedule such as it is fair or unfair, achievable or impossible, and a challenge or a demeaning experience more worthy of a dog than a person.

Although there are still questions about what type of schedule of reinforcement works best with workers, two general conclusions appear warranted it does appear more effective to reward employees on the basis of the number and quality of what they have done rather than on the basis of fixed time intervals. Fred Taylor noted this in his principles of Scientific Management and advocated a piece rate system of incentives in which workers were paid by the unit of work. Because the worker is paid each and every time his productivity achieves the standard, it is a continuous reinforcement schedule. The findings of research on non-humans suggests using a partial schedule in which reward only occurs after every nth occurrence in achieving the standard level of productivity with either a fixed or variable number of occurrences required for a reward. Whether the schedule is continuous, fixed, or variable, rewarding an employee in some way for what they have done rather than the mere passage of time is likely to yield better results. With a fixed or interval ratio reward system, employees can see a direct link between their performance and organizational bonuses, and the perception of this linkage is a tremendous incentive builder.

Despite the recommendations of Taylor and the behaviorists, reinforcement schedules in the workplace are most often based on fixed intervals, such as paying people every two weeks, or giving a bonus every Christmas. There are some good reasons for this. As suggested in the Human Relations approach and even by some of the Scientific Management proponents, people often need the security that comes from knowing that a paycheck will arrive on a regular basis and is not totally dependent on what they do. To

the extent that productivity is affected by other factors that employees cannot control, a continuous or ratio schedule is seen as unfair and frustrating. For instance, an employee paid only for the number of units produced is not paid if the machine breaks down or some other unexpected and uncontrollable event. Lowering their pay under such circumstances could lead to less effort on the tasks, not to mention action to restore justice (e.g., a work stoppage in protest of the unfair treatment). There is also the matter of human dignity. Workers are not rats in a Skinner box!

A second general conclusion, in addition to the recommendation to pay contingent on performance, is to make the consequences for meeting performance standards immediate. Whatever the schedule used in administering the positive reinforcer, negative reinforcer, or punishment, the occurrence of the behavior and the consequence is clearly linked by providing the consequence contingent on the behavior and as soon after the behavior as possible. This is a principle that is often violated such as when we punish a puppy for urinating on the floor several hours after the event. In the workplace, rewards are too often given months or even years after the behavior that is being rewarded. The lack of linkage undercuts the ability of the reward to affect future behavior.

### Application of BMod in the workplace

Most practical applications of operant conditioning to the workplace focus not so much on the specific schedule of reinforcement as on identifying the specific behaviors that are desired and the positive reinforcers to provide to increase the likelihood of these behaviors, and then establishing a connection between the behaviors and the receipt of the reinforcers. The essential component of BMod is providing positive reinforcers contingent on the occurrence of desired behaviors. According to Komaki, Coombs, and Schepman (1991), a BMod program typically follows four steps:

1. Specify desired behavior (i.e., set a performance goal).
2. Measure the desired performance that meets this goal.
3. Provide frequent, contingent, positive consequences for meeting the goal.
4. Evaluate the effectiveness of the BMod program in improving performance on the job.

Management must specify the exact behavior or behaviors that workers are expected to achieve, along with an accompanying time line. In essence, this is equivalent to setting a specific goal. If, for example, management wished to motivate its salespersons to increase their sales volume by 20% within six months, then they would need to clearly state that goal in a way that would allow a quantitative measurement of progress in achieving the goal. They would need to carefully measure sales volume to provide documentation for performance changes over time. It is very important to publicly post performance changes (in this case, sales volume) so that these changes are salient to all involved workers. Public posting provides frequent direct feedback to employees on their progress in meeting performance goals. Finally, to assess the effectiveness of the program, they would need to evaluate the performance changes quantitatively.

Luthans, Paul and Baker (1981) provided a classic example of the use of BMod to

motivate employees. The researchers provided contingent rewards to sales personnel in a large retail department store to improve their work performance. Some of the behaviors identified as constituting good performance were assisting a customer within 5 seconds after he or she arrived in the sales area and keeping the shelves stocked within 70% of capacity. The experimenters observed and recorded employee behavior on the sales floor and then rewarded them with various amounts of paid time off, depending on how well the performance goals were met. Prior to this behavioral intervention specific goals were not set and the most common consequence of poor performance were threats by management. The evaluation of the experiment over a 60-day interval is illustrated in figure 4.4. The baseline period refers to a period of time during which the experimenters observed the employees prior to the intervention. After the intervention was initiated, performance increased dramatically in the experimental group and remained high even after the reward program was discontinued (the post intervention phase).

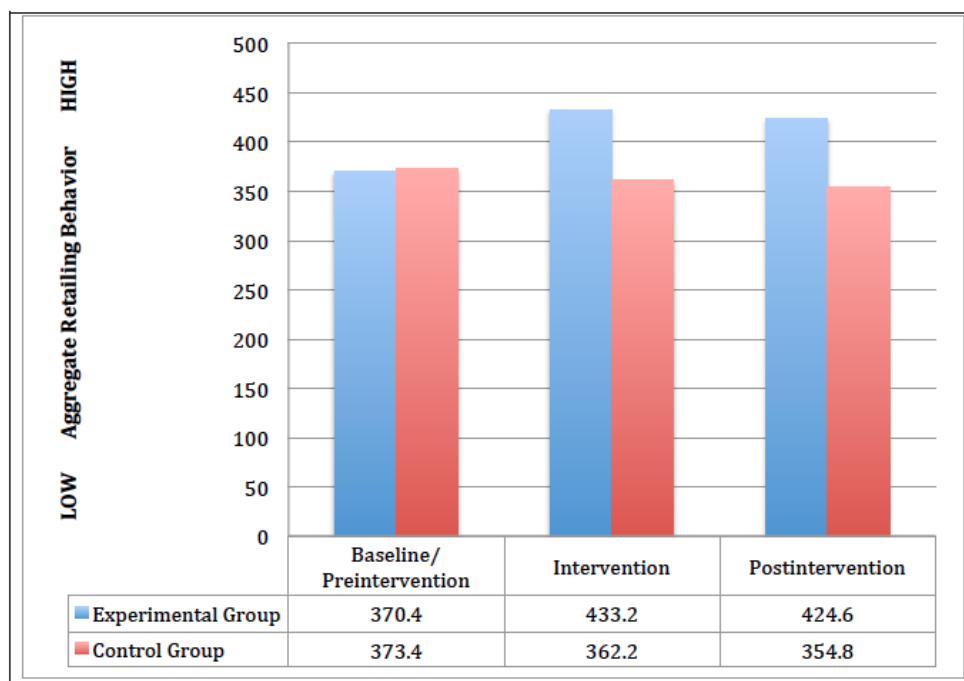


Figure 4.4: Aggregate Retailing Behavior as a Consequence of Providing Contingent Reinforcement (experimental group) vs. Pre-intervention and No Reinforcement Control Group.

Probably the best-known example of a successful application of a behaviorally based motivation program was the Emery Air Freight Corporation program. A focus of this program was to motivate workers to use containers properly in packaging items for shipment. The employees were shown how to properly package items and performance goals for packaging were stated in specific, quantifiable terms. Supervisors then used verbal praise as a reinforcer and performance progress was charted. Although the program was eventually discontinued, it apparently achieved some success at the time it was implemented. According to Emery, the program saved the organization \$2 million in one year alone. For an account of the Emery Freight use of BMod take a look at the

following 1972 film featuring the leading proponent of behaviorism at the time, B. F. Skinner:

<http://www.youtube.com/watch?v=oDal--Gp2BE>

### Implications and current trends

From both the empirical research and applications in industry, it seems obvious that behavioral principles do work. Contingent reinforcement schedules, particularly fixed and variable ratio schedules, are often quite effective in motivating workers to alter their behavior. The distinction between variable and fixed schedules is not especially important when applied to humans. The important lesson of behaviorism is that management should establish the linkages between what workers do and consequences of their efforts rather than basing rewards solely on passage of time.

Despite their effectiveness, behavioral programs have not been widely applied in organizations. One reason is practicality. The record keeping and paper work required to implement and maintain these types of programs are prodigious. Moreover, such programs can have a boomerang effect: If they are discontinued, performance may fall below baseline. Strict behaviorism has also been criticized for its "black box" approach to human behavior; that is, it ignores the obvious influence of cognitive and unconscious factors (Bandura, 1982, 1986). An additional concern expressed by many psychologists is that behavioral programs are unethical when they attempt to blatantly manipulate workers' behaviors (Rogers & Skinner, 1956).

Social learning theory is an interesting extension of behavioral theory that recognizes that there is more than a "black box" and that people think and feel (Bandura, 1982; 1986). One of the tenets of social learning theory is that most learning results not from rewarding or punishing behavior, but from observing the behaviors of other people; this is called observational learning. For example, children learn many behaviors, such as how to cross the street, by observing older children and adults. O'Reilly and Puffer (1989) nicely demonstrated an application of social learning theory to organizational research. In both laboratory and field studies, they found that the observation of rewards and punishments affected observers' job attitudes. For example, when there was an inappropriate reward or sanction toward a fellow subject or worker, such as receiving punishment that was not deserved, motivation, satisfaction, and equity were observed to decrease. More cognitively oriented approaches to behaviorism (e. g., O'Reilly & Puffer, 1989), address one of the major criticisms of behavioral research and application, namely, the neglect of cognitive factors. The future of behaviorism in organizations clearly lies in the marriage of behavioral and cognitive principles.

Manipulating the consequences of employee actions so as to reward or punish them is a powerful and proven method of changing the behavior of employees and getting them to exert more effort on the job. It's also the first question one ought to ask after determining worker goals. But this question is not enough. It is clear that an understanding of employee motivation and the use of interventions to increase motivation requires that one

goes inside the person to understand not only the behavior and environmental consequences of behavior but also the person's thinking and emotions. To some extent the goal-setting approach does this. The discussion now turns to three other theories that focus on the psychological processes in the form of expectations, needs, and perceptions of fairness.

Points to ponder:

1. "All we need to do to ensure high levels of motivation is make sure people are monetarily rewarded for high performance." What are the problems with this assertion? Why do pay-for-performance programs go wrong so often?
2. Skinner and other radical BMod advocates assert that we do not need to take into account human perceptions or psychological factors. What are the problems with a radical approach to BMod? How do you believe a BMod approach needs to be modified when applied to humans as opposed to critters?
3. Provide examples of the various types of operant conditioning as they might occur in the workplace.
4. The work on BMod suggests that operant conditioning in which management provides positive outcomes contingent on behaviors that are desired is more effective than management punishing behaviors that they want to discourage. What accounts for the ineffectiveness of punishment as a means of modifying behavior?
5. If punishment is so effective, why do people continue to use it so frequently and why don't they use positive reinforcements more frequently?
6. You are irritated by a specific behavior of your friend and want to use BMod to eliminate the behavior. How would you go about doing this?

What are Employees' Expectations?

Imagine the following situation. A supervisor attempts to motivate her employees to achieve higher levels of productivity in their jobs. She starts by setting specific, difficult goals as advised earlier in this chapter. She also makes sure that attempts to achieve these goals are immediately rewarded, as advised by the BMod advocates. She is disappointed to find, however, that despite the goals set and the rewards provided, employees show little effort or persistence in attempting to achieve higher levels of productivity. What is holding them back and preventing them from successfully stimulating their motivation? The missing component here are factors internal to the employees that influence their motivation. The remainder of the chapter discusses these other factors, including expectancies, needs, perceptions of fairness, and the self. This section is concerned with what employees expect to occur as a consequence of their efforts. Do they expect that they can successfully achieve higher levels of productivity if they try and if they are more productive, do they expect that they will receive valued outcomes as the result of the success?

Let us consider an example that is probably familiar to the readers. Students have registered for a course and are excited because the topic is one they find really interesting and their friends have recommended. They are even considering graduate study in the

area covered in the course. After attending the first class session, they are bubbling over with excitement. They savor every word the instructor utters and read the textbook chapters with care. They study many hours for the first exam because it is extremely important for them to excel in this course. Their dismay is indescribable when their grade on the first exam is a C-. Disappointed but determined, they then try harder: They listen even more closely to the instructor and study even more than before. Imagine their shock when, on exam 2, they receive another C! As exam 3 and the end of the term approach, their enthusiasm wanes. They invent excuses not to attend class and have difficulty concentrating on reading assignments.

What has happened? The students began with a great expectancy of success; they believed that the appropriate effort (in the form of attending class and studying hard) would pay off in superior test performance and an A in the class. They also believed that a good grade would increase the probability of their being accepted into graduate school. As the term progressed, however, the expectancy that their effort would result in high performance decreased, and, consequently, the probability that the course grade would enhance their chances for admission to graduate school decreased. It is obvious that their motivation to expend effort on the course decreased during the term. A prominent theory of work motivation that could explain their decreased motivation is valence-instrumentality-expectancy theory, often abbreviated as VIE theory. This theory incorporates three key components in predicting and explaining the choices people make among goals and the vigor and persistence with which they pursue these goals. The components are (1) the expectancy that effort will lead to some level of performance, (2) the probability that this level of performance will lead to some valued outcome or outcomes, and (3) the valence or attractiveness of the outcomes.

### Basic components and predictions of VIE theory

Although several versions of this theory exist, Victor Vroom (1964) drew from an earlier theory of work motivation called path-goal theory (Georgopolos, Mahoney, & Jones, 1957) to propose what has become the Valence-Instrumentality-Expectancy (VIE) theory. VIE theory is fairly complex; however, the fundamental idea behind it is simple. The theory is based on the notion that, before expending any effort to achieve some outcome, people ask themselves, "What is in this for me?" If as illustrated in the example, they cannot see the association between their effort to reach a goal and the attainment of desired outcomes for reaching that goal, they simply will not choose to pursue the goal and if they do, they show a low level of vigor and persistence. More than any other motivation theory, VIE theory has a well-developed and quantified theoretical framework.

Expectancy is the perceived likelihood that the effort expended will result in some desired level of performance. The expectancy discussed in the previous example is the perceived likelihood that attending class diligently and studying hard will result in superior test performance. Expectancy is expressed in terms of a subjective or perceived probability ranging from 1 (you have no doubt that you can achieve the level of performance that you want to achieve, e.g., an A) to 0 (under no circumstances can you

achieve the level of performance that you want to achieve). The determinants of expectancy include, to name only a few possibilities, the self-esteem of the employee, past success experiences on the task, communications from others about one's chances of succeeding, and the actual situation (e.g., the difficulty of the task). All other things held constant, a person will work harder to succeed on a task the higher that individual's expectation that effort will lead to success.

To boost expectancy (see figure 4.5), one could provide success perhaps by first setting goals that are relatively easy to boost employee confidence and then gradually escalating the difficulty of the goals. One could also work to remove barriers in the situation to successfully achieving goals by providing training, resources, and designing the tasks to clarify the strategies that lead to success. These changes in the situation will often require that peers and supervisors communicate to the employee these strategies and ways of overcoming barriers. Trying to raise expectancies becomes a much more difficult task when the employee's personality is the source of low expectancies. For instance, low expectancies that effort will lead to success are often the result of feeling generally unworthy or incompetent and increasing task expectancies may require boosting the employee's self-esteem. The chapter covers this type of expectancy in a later discussion of the role of self-concept in work motivation.



Figure 4.5: Sources of Expectations That Effort Will Lead to Good Performance

Valence refers to the desirability or undesirability of some outcome (see figure 4.6). In the previous example, the positively valent or desired outcomes were an A in the course and admission to graduate school. Although the example did not include negative outcomes, VIE theory does account for negatively valued outcomes, such as dismissal or flunking out of school. Although a variety of different scales have been used, valence ratings of outcomes are often made on a scale from + 10 (very positively valent) to -10 (very negatively valent); a rating of 0 indicates no valence or preference. All other things held constant, the employee will work harder to succeed the more positive the valence of

performance success (i.e., the more attractive, pleasant, positive, etc.). But where does valence of performance success come from (see figure 4.6)? An important source of valence is what the employee perceives as the linkage between performance success and other positive outcomes. The employee asks if I achieve the goal of higher productivity will this lead to increased salary, recognition from my supervisor, promotion, a feeling of a job well done, etc. To the extent that employees expect positive outcomes to result from a successful performance, a successful performance is perceived as attractive (i.e., positively valent). The key intervention here is to make sure the employee perceives that achieving goals results in immediate, contingent rewards. This is consistent with what a BMod approach would recommend, but one often cannot rely solely on the objective reinforcement schedule to accomplish this. In addition, one often must communicate clearly to employees that success will bring rewards. In work situations managers need to consistently reward employees who do well and make visible to all employees how hard work has paid off.

The discussion of the theory could stop at valences and expectancies for most practical purposes, but VIE theory goes a step further and proposes a third component, instrumentality, to explain the valence associated with a successful performance of the task. In VIE theory instrumentalities are used to explain the positive and negative valences associated with outcomes and refer to

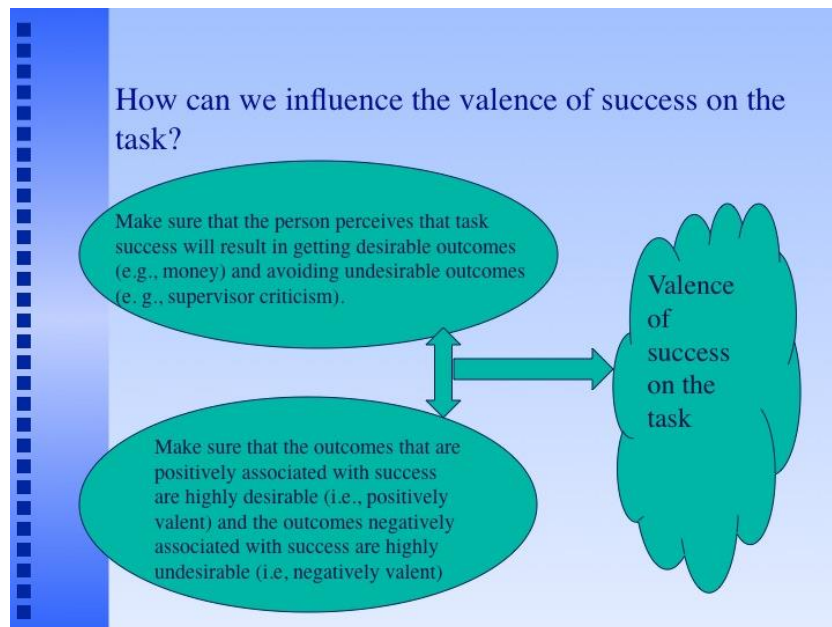


Figure 4.6: Making Sure that Employees Value Task Success

correlations among outcomes. If a student in a course considers an outcome of A to have a high positive valence (let's say a 10 on a scale of -10 to +10), what is the origin of this high valence? VIE theory answers this question by exploring how instrumental making an A is to achieving still other outcomes. For one student, an A is seen as positively instrumental to other positive outcomes such as the admiration of his fellow students and



the praise of his parents. The same student could perceive an A as negatively instrumental (i.e., getting the A will make less likely) to other negative outcomes such as flunking out of school. Vroom originally conceived of instrumentalities as correlations that range from + 1 to -1. As is the case with any correlation, a value of 0 indicates no relationship, a value of + 1 indicated a high positive relationship (where getting a higher grade is perceived as very likely to get one into graduate school), and a value of -1 indicates a high negative relationship between outcomes (where getting a higher grade is perceived as leading to a lower likelihood of getting into graduate school). A negative instrumentality between grades and getting into graduate school is unlikely but it is not unusual to find a negative instrumentality between getting higher grades and other valued outcomes. An example of a negative instrumentality is the perception that getting high grades in the course will lead others to perceive you as nerd and thereby limit your social life.

Most researchers subsequent to Vroom have decided in the interest of simplicity to ignore negative instrumentalities and focus solely on positive instrumentalities. If only positive instrumentalities are considered, then the metric for instrumentality is exactly the same as expectancy (i.e., they range from 0 to 1). In motivating employees to higher levels of effort, management will want to increase expectancies that effort will lead to successful performance and the valence of success. To increase the valence of success management will want to make sure successful performance is positively instrumental to achieving other highly valued outcomes. Classical and human relations approaches often assume that the valence of outcomes is the same for all employees. Classical theorists assumed that money is positively valent to the same extent for all employees. For human relations theories, recognition from peers and supervisors and belong to a group were positively valent to the same extent for all employees. VIE theory recognizes that there are individual differences and to motivate employees we must make sure that successful performance on the job is linked to outcomes that are actually valued.

According to Vroom's formulation of VIE theory, the three components interact in a multiplicative fashion such that the amount of effort exerted to accomplish a goal is the product of the expectancy that effort will achieve the goal and the valence of achieving the goal. Vroom called the product of expectancy and valence Force (F), which is the motivational force to strive to achieve a goal or a level of performance. An example of two people is provided in table 4.1. Susan and Joe are two salespeople deciding if they want to devote their time and energy to selling insurance policy A or the new insurance policy B. Both employees consider the same outcomes in making their decisions, and both consider the same behavioral options (i.e., work to sell policy A or try to sell policy B).

If we apply the within-person model as originally conceived by Vroom (1964) and perform the arithmetic operations on the valences, instrumentalities, and expectancy, it is obvious that Susan will choose to exert more effort to sell the new policy B, and Joe will choose to push policy A. It is important to recognize, however, that the within-person model does not necessarily yield the same prediction as a between-person application of the model. This is discussed in the next section.

### Illustration of VIE Theory

**PROBLEM:** Joe and Susan are two salespeople in an insurance company who, up until now, have sold more of insurance policy A than of any other type. However, the company would prefer that in the future they devote more of their efforts to selling policy B, a more profitable type of insurance policy that was recently developed. How could you use VIE theory to predict how motivated that Joe and Susan will be to sell policy A vs policy B? Assume that through interviews you have determined that they both anticipate several positive outcomes from selling the policies – a cash bonus, pride in achievement, and supervisor recognition – as well as a negative outcome in the form of a loss of leisure time. You also have found that Joe and Susan anticipate different levels of satisfaction from achieving each of these outcomes (i.e., the valences of the outcomes differ). To use VIE theory you would now need to ask the following questions.

#### 1. What is the expected satisfaction or valence (V) of selling policy A?

	Susan			Joe		
Outcome	v	i	v x i	v	i	v x i
Salary bonus	9	.3	= 2.7	7	1.0	= 7.0
Pride in achievement	9	.4	= 3.6	6	.5	= 3.0
Supervisor recognition	5	.1	= .5	4	1.0	= 4.0
Loss of leisure time	-1	.9	= -.9	-7	.3	= -2.1

Valence (V) of selling policy A = Sum of products of v's and i's.

Valence for Susan =  $2.7 + 3.6 + .5 - .9 = 5.9$

Valence for Joe =  $7.0 + 3.0 + 4.0 - 2.1 = 11.9$

#### 2. What is the expected satisfaction or valence (V) of selling policy B?

	Susan			Joe		
Outcome	v	i	v x i	v	i	v x i
Salary bonus	9	1.0	= 9.0	7	1.0	= 7.0
Pride in achievement	9	.5	= 4.5	6	.4	= 2.4
Supervisor recognition	5	.6	= 3.0	4	.7	= 2.8
Loss of leisure time	-1	.9	= -.9	-7	.6	= -4.2

Valence (V) of selling policy B = Sum of products of v's and i's.

Valence for Susan =  $9.0 + 4.5 + 3.0 - .9 = 15.6$

Valence for Joe =  $7.0 + 2.4 + 2.8 - 4.2 = 8.0$

(Table 4.1 continued)

**3. What is the expectancy (E) of each employee that that he or she can sell each policy?**

Expectancy of Selling Each Policy?		
Policy	Susan	Joe
A	.4	1.0
B	.3	.8

**4. What is the motivational force (E X V) to sell each policy?**

Expectancy of Selling Each Policy?		
Policy	Susan	Joe
A	2.36	11.90
B	4.68	6.40

**5. What is the within-subjects version of VIE theory (Vroom, 1964) prediction for the effort each employee will exert?**

Susan will work harder to sell policy B than policy A.

Joe will work harder to sell policy A than policy B.

V = valence of individual outcomes measured on a -10 (very undesirable) to +10 (very desirable) scale

i = instrumentality of selling policy for obtaining an outcome, measured on a -1.0 (negatively related) to +1.0 (positively related) scale.

E = expectancy of selling the policy, measured on a 0 (no chance at all) to 1.0 (absolutely sure) scale.

Table 4.1: Illustration of VIE Theory

## Research testing VIE theory

How has VIE theory held up under empirical investigation? Since Vroom published his book in 1964, I/O psychologists have conducted a lot of laboratory and field research using actual employees and students to test the theory. Most of the early studies only weakly supported the theory's major assumptions. By the early to mid-1970s researchers had grown somewhat disenchanted with VIE theory (Campbell & Pritchard, 1976; Mitchell, 1974). One criticism was that the theory was unnecessarily complex and does not reflect true decision processes (Stahl & Harrell, 1981). VIE theory assumes people are rational decision makers and will seek to maximize their outcomes. The chapter on the history of I/O discussed how decision theorists such as Herbert Simon and James March questioned the assumption that people are maximizers who seek to optimize their outcomes. A more realistic assumption is that people have limited cognitive capabilities, often are guided by unconscious motivations, and seek to satisfice rather than maximize (Locke, 1975; Pinder, 1984; Staw, 1977). Other researchers claimed that either instrumentalities, valences, or expectancies alone account for the observed motivational effects and that including the products of these components does not add to the prediction of work motivation (Jorgenson, Dunnette, & Pritchard, 1973; Lawler & Suttle, 1973; Schmitt & Son, 1981). Based on these and other criticisms, it is clear that VIE theory is not enough to predict and explain work motivation. However, a renewed respect for VIE theory has emerged from research identifying several moderator variables that define the conditions in which the predictions most likely hold.

Between-subjects vs. within-subjects research designs. A lot of the previous research testing VIE theory used a between-subject research design in which the correlation was computed between performance on the job of each individual employee and the individual's Force component. Vroom (1964) originally used the theory to explain how one person chooses among alternative courses of action rather than using it to compare how multiple people work toward one course of action. The within-subjects approach examines the process of individuals choosing among different behavioral options and is a more appropriate test of Vroom's (1964) VIE theory. For example, in the example we just discussed, Joe and Susan individually consider which of two alternative actions to pursue. Should they continue to sell policy A or should they work harder to sell policy B? Many researchers ignored the within-subjects emphasis of Vroom and instead predicted how different employees compare in their behavior with regard to single behavioral options. This between-subjects version of VIE is illustrated in figure 4.7. The focus is on sales of the new policy (policy B) and questions about expectancies, valences, and instrumentalities for that particular behavioral option. Because Joe has more motivational force (higher  $E \times V$ ) than Susan to sell policy B ( $6.40 > 4.68$ ), a between-subjects VIE theory would predict that he would show more motivation in attempting to sell policy B than Susan. Research using a between-subjects approach has yielded results that are much weaker than the results of research using a within-subjects approach (Pinder, 1984). Below you will find an illustration of an application of the between person expectancy model and another illustration of the within-person expectancy model (see figure 4.8).

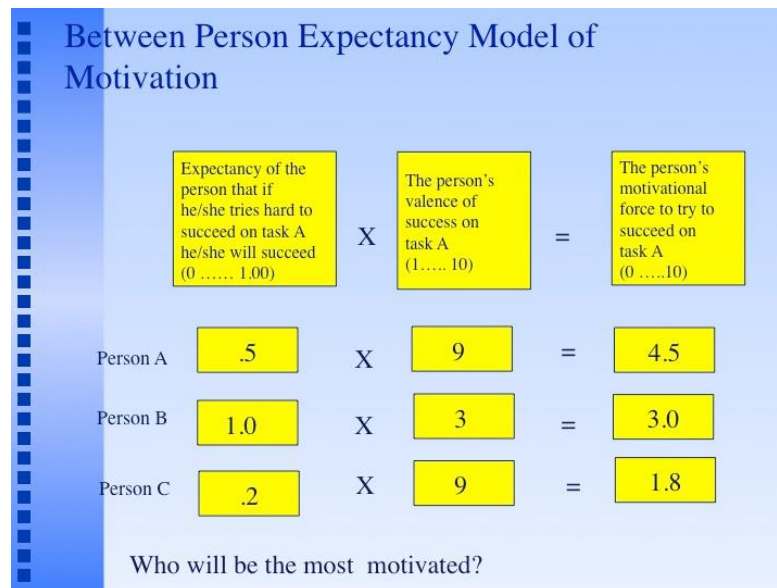


Figure 4.7: The Between Person Expectancy Model of Motivation

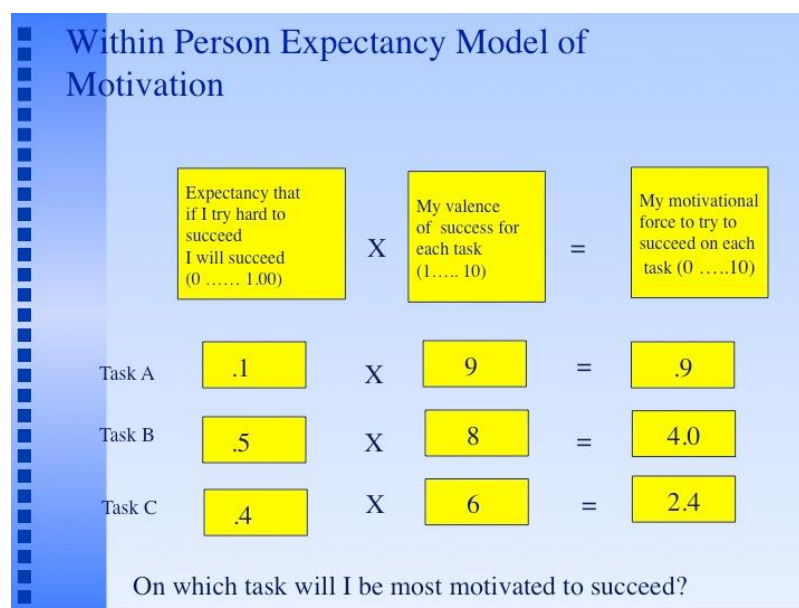


Figure 4.8: The Within Person Expectancy Model of Motivation

Use of standard vs. individualized lists of outcomes. Related to the second criticism is the questioning of the typical practice by researchers of presenting their subjects with a list of standard outcomes (money, promotions, etc.) and asking them to rate the desirability (valence) of each outcome. Standard lists do not necessarily capture the important outcomes for each person. For instance, Joe (in the example) may value none of the outcomes that he is given to rate. Subsequent research showed that when subjects were allowed to generate their own lists of outcomes, the theory received more support (Matsui & Ikeda, 1976). Using only desirable outcomes also seems more effective than using both

desirable and undesirable outcomes (Leon, 1981). The findings suggest that having people try to calculate the relationship of the behavior to both negative and positive outcomes is simply too complex of a calculation for the average person.

Use of performance rather than motivation as the dependent variable. In much of the research testing VIE theory, the primary dependent measure is performance on the task or job. On a simple task where performance is a direct function of effort, the researcher could use performance as a surrogate measure of motivation. However, in the field research with more complex tasks and jobs, it is erroneous to necessarily assume that higher performance reflects higher motivation. As we noted earlier in this chapter, performance is not the same as motivation and is a function of motivation, ability, and knowledge. Indeed, if high motivation is associated with stress and anxiety and the task is complex, it is possible that high motivation is detrimental to performance. Consequently, much of the research testing VIE theory may have underestimated the support for the theory by using performance rather than motivation as the dependent variable.

Individual differences. There are differences among people in the extent to which a VIE theory predicts their work motivation. Reviews of the research (Miller & Grush, 1988) have shown that some individuals are more affected by internal factors, such as expectancies, and others by environmental factors, such as social norms (influence from friends, family, and teachers). As predicted, people were affected less by their personal expectancies to the extent that they were focused on what other people consider appropriate and inappropriate. To the extent that they were unconcerned with social norms, their behavior conformed to a greater extent to the predictions of VIE theory.

## Implications

The implications of valence, expectancy, and instrumentalities for practice are fairly obvious. Pinder (1991) recommended several actions that management could take to implement VIE theory:

First, managers should make sure that their employees expect that they can achieve whatever standards of success are set on the tasks they perform. This requires selecting employees who have the ability to perform these tasks, training employees so that they have the skills and knowledge required on the tasks, and designing the work environment so that there are adequate supplies, tools, and facilities.

Second, managers should offer rewards that employees positively value (valence). Although management may perceive promotions and job transfers as suitable rewards for superior performance, not all employees may share managerial perceptions of desirability.

Third, managers should forge the link between performance and positively valent rewards (instrumentalities). Employees must also perceive this linkage. Management assumes that employees see the association between their performance and valued rewards, which is

often an unfounded assumption. Management must make sure to define for employees the instrumentalities between performance and valued rewards rather than assume that employees already perceive them in the way that management intends.

In addition to these interventions, we would add another suggestion that follows directly from VIE theory. Management should communicate information on expectations, instrumentalities, and valences to make sure that all these interventions are perceived in a way that facilitates the motivation of employees. For instance, it is not enough to provide valued rewards contingent on meeting work standards. Management should convince employees that their efforts will pay off with valued rewards. A basic assumption of VIE theory is that it is workers' perceptions and beliefs that have the most immediate impact on motivation.

Current research on VIE theory has corrected many of the faults of earlier studies and subsequently demonstrated more support for VIE theory predictions (Pinder, 1984). People often do make personal behavioral choices after weighing their expectancies, valences, and instrumentalities. As discussed later in this chapter, VIE theory along with goal theory serve as the core of an integrative approach to work motivation.

Points to ponder:

1. How are VIE theory and BMod similar in their approaches to increasing motivation? How do they differ?
2. Compare and contrast the within-person and the between-person versions of VIE theory. Provide examples of each one.
3. Why does the research provide more support for the within-person version of VIE theory than the between-person version?
4. Imagine that you were to use VIE theory to predict the grades received on the next exam in a class. How would you use VIE theory to make the prediction? What would you measure and how? How would you use the measures to make a prediction?
5. VIE theory assumes that a situation in which expectancies are high and valences are low is equivalent in the impact on motivation to a situation in which expectancies are low and valences are high. Is this always the case? Why or why not?

What do Employees Need?

The discussion so far leads to three recommendations for motivating employees. First, specific, difficult goals lead to higher levels of effort to the extent that the person is committed to the goal. Second, providing desirable rewards contingent on the accomplishment of goals leads to higher motivation. Third, motivation increases to the extent that the person has high expectancies that effort will lead to the accomplishment of goals and that the accomplishment of goals, in turn, is instrumental to achieving desirable outcomes and avoiding negative outcomes. Although useful, these recommendations beg the questions of just why people are more committed to some goals than others and consider some outcomes more desirable than others. Work motivation theorists have posed these questions and, in the attempt to determine why people seek some outcomes

and avoid others, have posited needs as central psychological constructs.

A need is basically a category of goals possessed by the individual that direct, energize, and sustain attempts to achieve the goals defined by this category. For instance, one might have the goal of eating a big, juicy hamburger for lunch. Driving the choice of the goal and the attempts to find and eat a burger is a need for food. The need is more abstract than the specific goal and is fulfilled to varying degrees by other goals falling into the need category. If one fails to find a nice juicy hamburger, perhaps a pizza will accomplish the same thing. The need for food is physiologically based but most of our needs are psychologically based and part of our personality. When describing a friend, one often uses words like aggressive, domineering, competitive, nurturing, and sociable. These are personal descriptors or characteristics that psychological theorists believe are related to basic human needs. For instance, aggressiveness, dominance, and competitiveness could reflect needs for power, whereas nurturing and sociability could reflect a need for affiliation. Everyone possesses these needs but people differ in the importance they place on each need and the impact on behavior. For example, if Fred has a greater need for affiliation than Bob, then Fred will exert more effort and show more persistence in the search for other people with whom to interact than will Bob.

Figure 4.9 describes the homeostatic model of needs and the cycle of events associated with need driven behavior. The cycle begins with a discrepancy between a goal and the current state of the person. This discrepancy leads to frustration of an internal need associated with the goal. The frustration of the need leads to an arousal that could occur as anxiety, anger, and a host of other negative emotions. The person seeks to reduce the negative feelings by reducing the discrepancy that exists between the current state and the goal. The more motivated the person, the more the person chooses actions that achieve the goal and the more persistent and energetic he or she is in the attempt. Once the goal is achieved, the negative emotions subside until another goal discrepancy is encountered and the cycle begins anew.

Two caveats are worth mentioning at this point. First, the homeostatic model describes people as seeking to reduce tension and negative feelings associated with goal frustration. Motivation theorists also posit cycles in which needs lead the person to increase rather than reduce tension. Theorists such as Abraham Maslow proposed that this type of cycle describes the effects of self-actualization on behavior. Another caveat is that the cycle not only occurs as conscious attempts to achieve goals but also as unconscious and relatively automatic processes. People are not always aware of their own needs and the effects of these needs on how they behave.



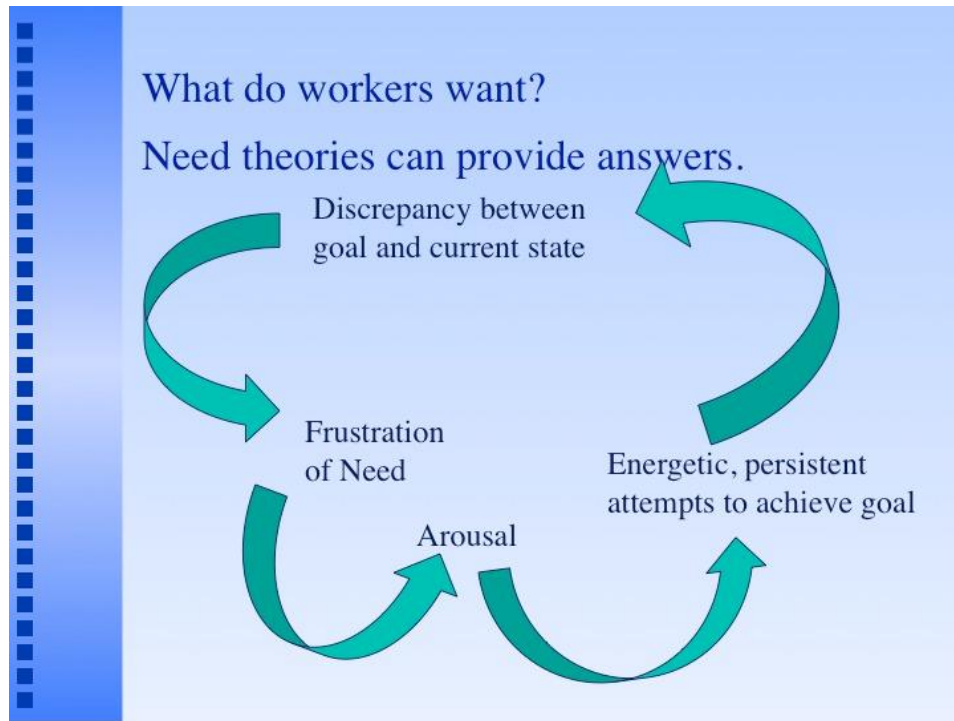


Figure 4.9: A Homeostatic Model of Needs

#### Murray's taxonomy of needs

Henry Murray (1938) pioneered work on need theory in the 1930s. Some theorists would distinguish between needs and wants. What we need is supposedly what we must have for the sake of our survival and well-being. A want is something a person would like to have but is not absolutely necessary. As the Rolling Stones sang:

“You can't always get what you want  
But if you try sometimes you just might find  
You just might find  
You get what you need”

There is no doubt that some of the biological needs such as the need for food, water, and air must be satisfied to some degree for the person to survive. However, Murray believed that there were psychological needs that were also important. Even though one might not die from their absence, they could have a motivational impact as large as any biological need.

Murray proposed more than 20 human needs (see the list of needs in table 4.2).

Need	Description
<b>Ambition needs</b>	
Achievement	To accomplish something difficult. To master, manipulate, or organize physical objects, human beings, or ideas. To overcome obstacles and attain a high standard. To rival and surpass others.
Exhibition	To make an impression. To be seen and heard. To excite, amaze, entertain, shock, intrigue, amuse, or entice others.
Recognition	To excite praise and commendation. To demand respect. To boast and exhibit one's accomplishments. To seek social prestige, distinction, high office, or honors.
Infavoidance	To avoid humiliation. To quite embarrassing situations or to avoid conditions that may lead to the scorn, derision, or indifference of others.
Defendance	To defend the self against assault, criticism, and blame. To conceal or justify a misdeed, failure, or humiliation.
Counteraction	To master or make up for a failure by restriving. To obliterate a humiliation by resumed action. To overcome weaknesses and to repress fear. To search for obstacles and difficulties to overcome. To maintain self-respect and pride on a high level.
<b>Materialistic needs</b>	
Order	To put things in order. To achieve cleanliness, arrangement, organization, balance, neatness, and precision.
Acquisition	To gain possessions and property. To grasp, match, or steal things. To bargain or gamble. To work for money or goods.
Construction	To organize and build. To create things.
Retention	To retain possession of things. To refuse to give or lend. To hoard. To be frugal, economical, and miserly.
<b>Power needs</b>	
Dominance	To control one's environment. To influence or direct the behavior of others by suggestion, seduction, persuasion, or command. To get others to cooperate. To convince another of the rightness of one's opinion.
Autonomy	To get free, shake off restraint, or break out of confinement. To resist coercion and restriction. To be independent and free to act according to impulse. To defy conventions.
Contrariance	To act differently from others. To be unique. To take the opposite side. To hold unconventional views.
Aggression	To get free, shake off restraint, or break out of confinement. To resist coercion and restriction. To be independent and free to act according to impulse. To defy conventions.

Abasement	To submit passively to external force. To accept injury, blame, criticism, and punishment. To become resigned to fate. To admit inferiority, error, wrongdoing, or defeat. To blame, belittle, or mutilate the self. To seek and enjoy pain, punishment, illness, and misfortune.
Deference	To admire and support a superior other. To yield eagerly to the influence of an allied other. To conform to custom.
Blame avoidance	To avoid blame, ostracism, or punishment by inhibiting social or unconventional impulses. To be well-behaved and obey the law.
<b>Affection needs</b>	
Affiliation	To draw near and enjoyably cooperate or reciprocate with an allied other who who likes me. To adhere and remain loyal to a friend.
Nurturance	To give sympathy to and gratify the needs of a helpless other, an infant or one who is weak, disabled, tired, inexperienced, infirm, humiliated, lonely, dejected, or mentally confused.
Succorance	To be nursed, supported, sustained, surrounded, protected, loved, advised, guided, indulged, forgiven, or consoled. To remain close to a devoted protector.
Rejection	To exclude, abandon, expel, or remain indifferent to an inferior other. To snub or jilt another.
Play	To act for fun, without further purpose.
<b>Information needs</b>	
Cognizance	To explore, ask questions, satisfy curiosity. To look, listen, inspect. To read and seek knowledge.
Understanding	To be inclined to analyze events and to generalize. To discuss and argue and to emphasize reason and logic. To state one's opinions precisely. To show interest in abstract formulations in science, mathematics, and philosophy.
Exposition	To educate others. To point and demonstrate. To give information, explain, interpret, lecture.
<b>Viscerogenic needs</b>	
Harmavoidance	To avoid pain, physical injury, illness, and death. To escape from a dangerous situation. To take precautionary measures.
Sentience	To seek and enjoy sensuous impressions.
Sex	To form and further an erotic relationship. To have sexual intercourse.

Table 4.2: Henry Murray's Need Taxonomy

Viscerogenic needs are associated with physiological functioning and included food, water, sex, urination, defecation, and lactation. Psychogenic needs are mostly learned and are organized into the following categories: materialistic needs, ambition needs, affection needs, power needs, and information needs. Murray differed from earlier theorists in his assertion that psychogenic needs are learned, not inherited. Additionally, he believed that

environmental cues activate psychogenic needs. For example, people with a need for affiliation only seek companionship when other people are available. Murray believed that all people possess the same basic needs, although in different amounts. For example, Sally and Susan both have a need to achieve, but Sally's need to achieve is greater than Susan's. Each person is unique in the relative importance of these needs. Most of the categories of needs are further divided into those that are positive and those that are negative. The positive needs push the person in the direction of obtaining the object related to the need (e.g., air is a need that pushes the organism to breathe and thereby obtain air). The negative needs push the person in the direction of creating distance from the object or experience (e.g., harmavoidance is a need to avoid physical pain).

Murray said little about needs within the context of work motivation, but his ideas and measurement techniques greatly influence work motivation theories. His conception of human needs was particularly important in the theories of Abraham Maslow, Clay Alderfer, and David McClelland.

### Maslow's need hierarchy

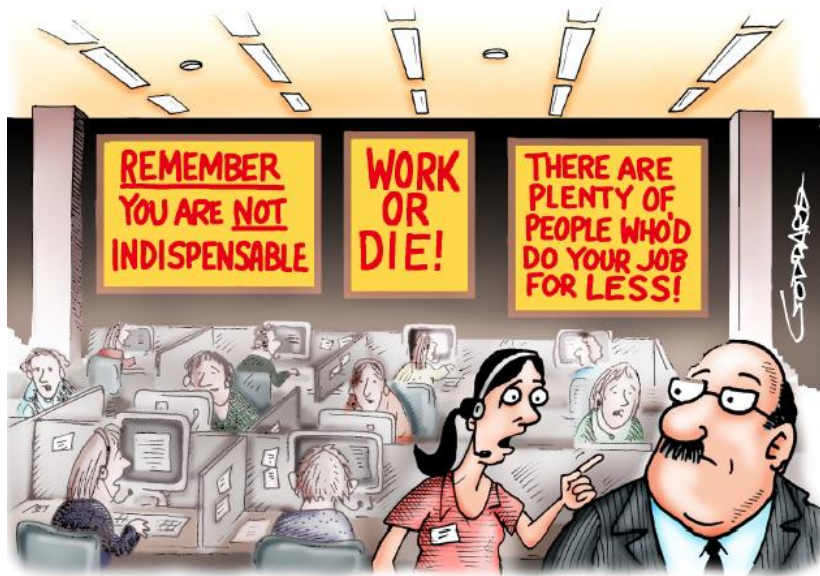
Abraham Maslow (1954) proposed a theory of human motivation that grew out of the humanistic movement in psychology. By observing clients in his clinical practice, Maslow determined that five types of needs motivate people: biological, safety or security, social, ego, and self-actualization needs.

*Biological needs* include physiological needs for food, water, sleep, and reproduction (i. e., sex).





*Safety and security needs* include the needs for law and order and protection from harm as well as the need to feel that tomorrow you will not lose what you have today.



"Mr Frimley, sir, can I have a word about the motivational artwork?"

*Social needs* include the desire to obtain emotional attachments, such as friendship and love, and to associate with other people.



Image courtesy of Tumoas\_Lehtinen at FreeDigitalPhotos.net

*Ego needs* are the needs to gain self-esteem and respect; some ego needs are focused inwardly, such as the desire for self-esteem and mastery, and others outwardly, such as the desire for recognition.



Image courtesy of Ambro at FreeDigitalPhotos.net

*Self-actualization needs* involve needs associated with personal growth and development; more specifically, self-actualization refers to realizing one's potential and becoming the best one can be.



Source: <http://media-cache-ak0.pinimg.com/736x/1f/2f/af/1f2faf00669bf5fe6fda896dc0d21978.jpg>

Maslow proposed that these needs are arranged in a hierarchy of importance: Higher order needs are not important until lower order needs are satisfied. For example, if a person is hungry or thirsty, he or she is not as concerned with fulfilling needs for friendship and protection from harm until the hunger or thirst is satiated. Maslow thought that, most people are more successful in fulfilling their lower order needs than their higher order needs; that is, the needs for food and sex are more often satisfied than the need for relationships with other people. However, people do not need to completely satisfy their lower order needs before they are motivated by higher level needs. Some threshold in the satisfaction of lower level needs is required before higher order needs are activated. Given that this threshold is met, lower level needs can continue to motivate people at the same time that their higher order needs become increasingly important in influencing their behavior.

In Maslow's theory, the physiological, security, social, and ego needs all operate according to a homeostatic principle. If they are frustrated there is tension and negative affect followed by attempt to reduce the frustration. Once the person achieves goals that satisfy these needs, the tension and negative affect subsides and the person is at peace and no longer driven. In contrast to these needs, self-actualization, or the need to realize one's potential in life, are never entirely fulfilled. In essence, Maslow conceived of self-actualization as a lifelong growth process. An artist who strives for self-actualization, according to Maslow, does not need to become a Picasso or Rembrandt, but only the best artist he can be. This self-improvement process continues throughout a person's lifetime (Maslow, 1943; 1954).



*Maslow proposed that once individuals reach the level of self-actualization on the need hierarchy, they keep climbing and never arrive at a state of complete fulfillment.*

Maslow never envisioned his theory as a theory of work motivation, but some very prominent psychologists have used the need hierarchy to understand the motivation of people at work and in organizations. Douglas McGregor (1960), in his article *The Human Side of Enterprise*, is one of these theorists. One implication of the need hierarchy for work settings is that management must determine where workers are located on the hierarchy. If workers are primarily concerned with their safety needs at work (for example, job security), Maslow's theory suggests they are less likely to respond to attempts to satisfy their esteem needs (for example, recognition or status). Because at any one point in time individuals may differ in the relative importance of their needs on the need hierarchy, Maslow's theory also implies that each worker may require something different to satisfy his or her needs. Still another implication of the need hierarchy is that, if management can fulfill a worker's physiological and security needs, they should next address the ego and self-actualization needs. As a consequence, the need hierarchy has been cited as the impetus for diverse organizational change efforts, from the creation of pleasant work environments and employee-oriented supervision to participative management programs and job enrichment.

Maslow's need hierarchy was popular with many of the human relations theorists that we discussed in module 2. McGregor (1960) introduced the concepts of Theory X and Theory Y management philosophies. Theory X describes a task-oriented, directive management style such as proposed in scientific management where the only concern is with motivating employees through money and the threats of punishment. Theory Y describes an employee-oriented, participative management style. A Theory Y manager would attempt to determine the unsatisfied needs of his or her subordinates (in Maslow's terms, their location on the need hierarchy) and then attempt to satisfy those needs. According to McGregor, organizations can only hope to obtain maximum productivity from workers to the extent that needs are taken into account. Many of the human relations theorists such as McGregor suggested that a Theory X approach probably worked just fine at the turn of the century when the majority of workers were most concerned with the bottom rung of the Maslow hierarchy and seeking to gain a livable wage. With rising affluence, the passage of laws guaranteeing security to workers, and the increasing education level of workers, they became more concerned with the higher level needs. The basic proposal of McGregor and others was that management styles needed to change from Theory X to Theory Y to fit the needs of workers in the mid-20th century and beyond.

Despite of its intuitive appeal, the research attempting to test Maslow's theory has found only mixed support. Factor analyses of the five proposed dimensions of the need hierarchy have shown these dimensions are not independent or even separable (Payne, 1970; Wahba & Bridwell, 1976). Also, little support has been found for the predictions for the effects of satisfaction or frustration of one level of need on other levels. As you recall, the need hierarchy theory requires that, as a need is satisfied, it becomes *less important* and the next higher need assumes more importance. Experimentation with humans in which their needs are frustrated or fulfilled are neither practical nor ethical. Consequently, the research tests have consisted mostly of survey studies examining how need satisfaction is related to need importance over time. The hypothesis that follows



from Maslow's theory is that satisfaction of a need at time 1 is negatively related to rated importance of that same need at time 2. Also, it is hypothesized that satisfaction of a need at time 1 is positively related to the importance of the need at the next higher level. The longitudinal tests of Maslow have yielded little support for this prediction (Hall & Nougaim, 1968; Lawler & Suttle, 1972; Rauschenberger, Schmitt, & Hunter, 1980).

### Alderfer's existence, relatedness, growth (ERG) theory

The research has not yielded strong support for Maslow's need hierarchy theory. In the attempt to modify and improve the model, Alderfer (1969) proposed the existence-relatedness-growth theory or ERG theory. Alderfer altered the need hierarchy by adopting a three-level classification system and abolishing the concept of a rigid hierarchy. The three categories are: 1) existence needs, which subsume Maslow's physiological and safety needs; 2) relatedness needs, which include Maslow's social needs; and 3) growth needs, which subsume Maslow's ego needs and self-actualization.

Unlike Maslow, Alderfer believed that people could move up and down this hierarchy and are motivated by more than one need simultaneously. For example, individuals who fail to obtain a coveted job promotion by taking on extra assignments at work may decide to spend more time on socializing while still striving for a future promotion. In this case a frustration of growth needs devotes more time to fulfilling both growth and relatedness needs. It is also possible they may decide to spend all their time attempting to fulfill relatedness needs, an option that Alderfer calls frustration/regression. As a consequence of thwarted attempts to achieve, the person regresses down the hierarchy and focuses on lower needs. The few empirical tests provide mixed support for ERG theory (Alderfer, 1972; Scherf, 1974; Wanous & Zwany, 1977). Undoubtedly, the failure of Maslow's theory to hold up under empirical scrutiny has discouraged research on any type of needs hierarchy. This is particularly unfortunate, given that Alderfer addressed many of the deficiencies of Maslow's hierarchy.

### McClelland's three need theory

David McClelland and his colleagues (Atkinson, 1964; McClelland, 1965) narrowed the list of needs to three that they consider especially important from personal, social, and organizational perspectives: need for Achievement (nAch), need for power (nPow), and need for affiliation (nAff). Unlike Maslow and Alderfer, these theorists did not propose a hierarchy of needs. Instead, they described people as possessing different profiles on the three needs. They proposed that each constitutes a trait that is modifiable. They also proposed that each operates according to a different set of dynamics.

Need for achievement (nAch). According to McClelland, our competitive and success-oriented society values and reinforces the need to achieve; friends, supervisors, and the media constantly encourage us to excel, to be "on top." Unlike some of the earlier theorists who viewed needs as innate and unchanging characteristics, McClelland believes that the achievement motive is a learned need that we acquire from our parents. At first glance, the implications of the achievement motive for personal and

organizational functioning are very impressive: The need to achieve would logically seem to have an impact on the type of job or career you desire, the level of job or career performance you attain, and the attitudes you hold about that job or career.

McClelland and his colleagues defined the essential dynamic at work in the need to achieve as behavior oriented toward competition with a standard of excellence. The method of measuring the achievement motive has relied primarily on a projective test, the Thematic Apperception Test, or TAT. An individual taking the TAT is shown a variety of pictures and asked to tell a story about these pictures. A need for achievement score is calculated by determining the number of times competition with a standard of excellence is mentioned in the stories. In figure 4.10 a high need for achievement person might tell a story in which the two women are working night and day to find a cure for a deadly disease and are on the brink of a great discovery. A person more oriented to power or affiliation might focus less on task accomplishment and on the relationship between the women, feelings of isolation and loneliness, or competition for power.

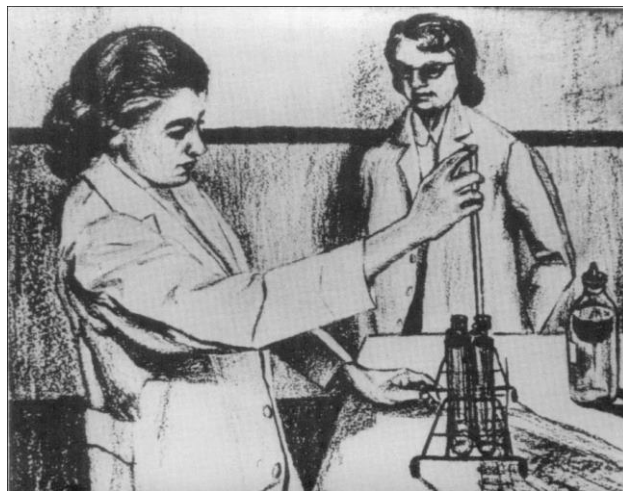
Three salient characteristics define the emphasis of high-need achievers on task performance. First, people high in the achievement motive take personal responsibility for solving a problem or performing a task. Second, they require concrete feedback about their performance. Only with performance feedback can the high-need achiever improve poor performance or bask in the glow of successful performance. Third, they set moderately difficult goals rather than very difficult or easy goals. The rationale here is that moderately difficult goals are challenging but still attainable.

Some research suggests that the high need achiever is most motivated there is about a 50/50 chance of success. Consequently, McClelland's hypothesis for the effects of goal difficulty appear to conflict at first glance with Locke's goal-theory hypothesis that the more difficult the goal, the higher the performance. If one considers the acceptance and commitment to the goal, however, the two theoretical positions are really compatible. As long as the person accepts and is committed to achieving a goal, increasingly difficult goals appear to lead to increased effort, as predicted by Locke and associates. However, it is often the case that commitment and acceptance eventually decline at very high levels of goal difficulty. This tends to support the achievement motivation predictions that motivation is at its peak in the vicinity of a .50 probability of success.

McClelland and his associates have developed a training program to enhance the achievement motive. They claim to have increased the need to achieve in many groups of people who participated in these programs. The training program consists of four major components:

- 1) Obtain information on the achievement motive and its importance for success.
- 2) Set high performance goals and maintain a record of performance accomplishments.
- 3) Try to think of yourself as a high achiever and a winner.
- 4) Seek group support from other people who are (or who are trying to become) high achievers.

The training program's most well-known success story involved business managers in India (McClelland, 1962). Several months after experiencing the training program, the business managers doubled the amount of their performance-oriented, and, therefore success-oriented, activities. These results concur with McClelland's contention that the achievement motive is increased through training, and that groups of people or whole cultures can become more achievement oriented. A moment's thought, however, reveals that the achievement motive training program contained elements other than need achievement, specifically goal-setting and social support. Any one or a combination of other factors may have produced the desired outcome. Consequently, finding that the training program works does not confirm the theory or justify the conclusion that increased nAch alone can account for the outcome.



*Look at the picture. Your task is to write a complete story about the picture you see above. This should be an imaginative story with a beginning, middle, and an end. Try to portray who the people might be, what they are feeling, thinking, and wishing. Try to tell what led to the situation depicted in the picture and how everything will turn out in the end. Be sure and examine the picture for several seconds before clicking the button below. Once you push the button, you will have 10 minutes to write whatever story comes into your mind. You should write continuously the entire 10 minutes. If you need more than 10 minutes, feel free to continue writing until you are finished.*

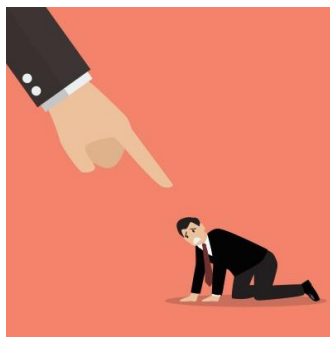
*Source: <http://www.utpsyc.org/TATintro/>*

Figure 4.10: Example from the Thematic Apperception Test

Need for affiliation (nAff). The need for Affiliation (nAff) refers to the desire for warm interpersonal relationships and interaction with others. Evolutionary theorists suggest that the need to affiliate with others and belong to a group is perhaps among the most primal of needs because the survival of humans as a species required affiliation with others. In measuring nAff with the TAT, researchers look for imagery that conveys thoughts about being with others, loneliness, approval, and the like. For instance, in the example shown in figure 4.10, a person with high nAff might tell a story in which the younger woman longs for the approval of the older scientist and seeks to become her friend. People with a

strong nAff seek the company of others and will behave in the workplace so as to win approval even if it hurts task performance. At the same time that a high nAff is probably advantageous if an employee must work as part of a team, research has shown that nAff is negatively related to success in managerial roles. One possible explanation is that managers must take responsibility and make hard decisions despite their personal feelings. High need for affiliation persons are more concerned that others like and accept them and to avoid rejection might avoid making the hard but necessary decisions that are always part of the managerial role.

Need for power (nPow). Another need with implications for work motivation is the need for power (nPow), defined as the need to control other people. Characteristics associated with the need for power include a desire to control other people, maintain leader-follower relations, and influence and direct others (Cherrington, 1989). In measuring nPow in the TAT picture presented in figure 4.10, the researcher looks for stories containing themes that involve dominating others. For instance, the story of a high nPow person might state that the younger woman is scheming to take over the older woman's position. Note that competition is part of high need for Achievement but it involves competition against personal standards of success not competition against other people. In nPow the person wants to compete out of a desire to beat and subjugate other people. McClelland (1970) describes two faces of power: personal power, or striving for power for its own sake, and social or institutional power, or striving for power for the attainment of organizational goals. Social or institutional power facilitates organizational effectiveness more than personal power because those individuals with a high need for social power will work toward organizational objectives rather than personal, ego-satisfying objectives (McClelland, 1970). Indeed, McClelland and Burnham (1976) proposed that the need for power, particularly social power, is a far more important managerial attribute than the need for achievement. In support of this contention, McClelland and Boyatzis (1982) reported that a high need for power and low need for affiliation predicted managerial success over a sixteen-year period at AT&T. By contrast, the need for achievement did not predict managerial success as well, particularly at the higher organizational levels. The author is not aware of any practical application of these findings, however, other than selecting managers on the basis of their needs for power, affiliation, and achievement.



*The need for personal power involves the subjugation of others and differs from the need for socialized power.*

Criticisms of McClelland's three need theory and later modifications. How has the three-

need theory fared under the scrutiny of systematic investigation? Despite its intuitive appeal, researchers have criticized McClelland's work on nAch, nPow, and nAff. Empirical evidence for the theory's propositions is mixed (Brockhaus, 1980; Finger, McClelland, 1976). Perhaps the weakest aspect of the theory is the reliance on a projective test, the TAT, to measure these needs. There is some recent research using sophisticated quantitative analyses that is more supportive (Spangler, 1992), but critics question the TAT's reliability and validity (Entwistle, 1972; Kraiger, Hakel & Cornelius, 1984). Intensive training of those rating TAT stories on the needs can improve interrater reliability but this is time-consuming and costly. Critics also point out the low correlation typically found between TAT measures of each of the three needs and self-report questionnaires measuring the same needs. As noted in the chapter on research methods, researchers seek evidence of convergent validity when attempting to establish the construct validity of a measure. So, if the TAT and self-report measures are both measuring the same need, one should find strong and positive correlations between self-report questionnaire scores and TAT scores. Unfortunately, researchers usually report that the correlations are low.

In later modifications of the three-need theory, McClelland and his colleagues (McClelland, Koestner, & Weinberger, 1989) explained the low correlations by positing that TAT and self-report questionnaires measure different facets or dimensions of the need. Needs exist at both an implicit, unconscious level and at an explicit, conscious level. The TAT purportedly measures the implicit dimension of the need. Self-report questionnaire measures of nAch, nAff, and nPow measure the explicit dimension and consist of conscious self-attributions of these needs. McClelland and colleagues hypothesized that where there are extrinsic incentives for a behavior and the situation is structured so that the person is aware of these contingencies, a self-report questionnaire measure of needs relevant to the behavior will show higher correlations than an implicit measure. Where the incentives are not obvious and the person is intrinsically motivated to show the behavior, implicit measures such as the TAT will show higher correlations than an explicit measure. For example, if an engineer is told that he will receive a \$1000 bonus and a promotion if he is able to win a contract, his effort and persistence in the attempt to succeed will increase to the extent that he believes that he has a high need for achievement as reported on a self-report questionnaire. The conscious self-attribution that "I am a high need achiever" will drive his efforts to achieve the goal. On the other hand, if the situation is unstructured so that the engineer does not know what it takes to earn bonuses and promotions and the situation lacks clear incentives or contingencies, his performance is affected more by his intrinsic motivation to do well. On a day-to-day basis, no one is standing over the engineer telling him what to do and his choices are guided more by implicit needs that are unconscious. It is in these situations where the TAT measure of nAch is a better predictor, according to McClelland, than a self-report questionnaire.

There are also many situations in which the implicit and explicit needs combine to facilitate performance and other situations in which the implicit and explicit needs conflict and undermine performance. McClelland et al (1989) backed up their hypotheses with supportive research, but much more research is needed before these hypotheses rise

to more than fascinating speculations and achieve the status of established theory. One issue remains. Because they depend on the subjective judgments of those coding responses to the TAT, this measure, along with most other projective measures, are notoriously low in inter-rater reliability. Consequently, the low correlations found for needs measured with the TAT and other variables may reflect on the low reliability of the TAT more than the implicit or explicit dimensions of the need.

### Practical implications of need theories

This chapter distinguishes among several need theory approaches to worker motivation, but there are some underlying similarities among them. They all borrowed from the original work of Henry Murray in proposing needs that they considered most important. Although the labels attached to the needs differed, there were striking similarities among the subsequent need theories that were derived from Murray's work (see table 4.3).

<b>Maslow</b>					
<b>Other theorists</b>	Self-actualization	Ego	Social	Security/Safety	Biological
<b>Alderfer</b>	Growth	Growth	Relatedness	Existence	Existence
<b>Herzberg</b>	Motivators	Motivators	Hygienes	Hygienes	Hygienes
<b>McClelland</b>	Need for Achievement	Need for Achievement Need for Power	Need for affiliation	NA	NA
<b>Hackman</b>	High Growth Need Strength	High Growth Need Strength	NA	NA	NA

Table 4.3: Comparison of Maslow's Needs with the Needs Proposed by Alderfer, Herzberg, McClelland and Hackman.

Once the needs of employees in an organization are identified, several options exist for increasing motivation.

1. Select employees on basis of needs that fit the work. Because needs are seen as associated with stable traits, one could evaluate applicants on the needs that we believe are associated with motivated work behavior and hire those who are high on these needs. Some needs are seen as relatively malleable (i.e., open to change).
2. Train employees to increase the needs that fit the work. If successful employees are more likely to have a certain set of needs, one could attempt to increase the importance of these needs through training or persuasion. When a sales manager gives a motivational speech to a group of salesmen with images of financial success he or she is attempting to increase the importance of money and thereby motivate them to pursue sales goals.

3. Change the situation to engage employee needs. Still another application of need theory is to change the work situation. If workers already have a high need for money and are motivated to earn more money, management could design the incentive systems in the organization so that they can in fact earn more money by working hard. If workers have a high need for affiliation, then management could reward successful performance with opportunities for social interaction (e.g., parties, casual Fridays). If workers have a strong need for self-actualization, management might reward them for working hard and showing persistence in the pursuit of organizational goals with opportunities for self-growth (e.g., send them to workshops, courses). In these practical interventions, it is important to realize that the potential benefits of a strong need in increasing work motivation and job performance are in doubt unless three other things are in place. First, specific, moderately difficult goals must accompany the needs. Second, immediate and contingent rewards must accompany the accomplishment of these goals. Third, employees must expect that they can achieve the goals associated with the needs through their efforts.

Points to ponder:

1. What is a need and does it affect human behavior in the homeostatic model?
2. Some critics of the need approach suggest that the use of the need construct is not parsimonious in that an almost endless number of needs are proposed. Do you agree? What is the value of a need approach to motivation and what are some of the downsides of this approach?
3. McClelland focused on three general categories of needs. What are these needs and do you believe they suffice in explaining motivation at work and in organizations?
4. Explain, providing examples, Maslow's need hierarchy. How well has it been supported in the research?
5. How did Alderfer modify Maslow's need hierarchy in his theory?
6. Distinguish between implicit and explicit needs and the ways of assessing them. Discuss the implications of these two types of needs for motivating employees.
7. Discuss the similarities and differences between the need approach to motivation and the goal, VIE, and Bmod approaches.

What is Fair?

Still another piece of the motivation puzzle is the perceived fairness or justice of the work situation. Claims that managers treat them unfairly are common complaints in organizations and can undermine otherwise worthwhile attempts to set goals, provide rewards, raise expectancies, and activate needs. On the other hand, fair and just treatment of employees and distribution of outcomes can encourage workers to work with vigor and persistence toward goals compatible with organizational objectives. This section considers four types of fairness that I/O psychologists have identified (see figure 4.11).

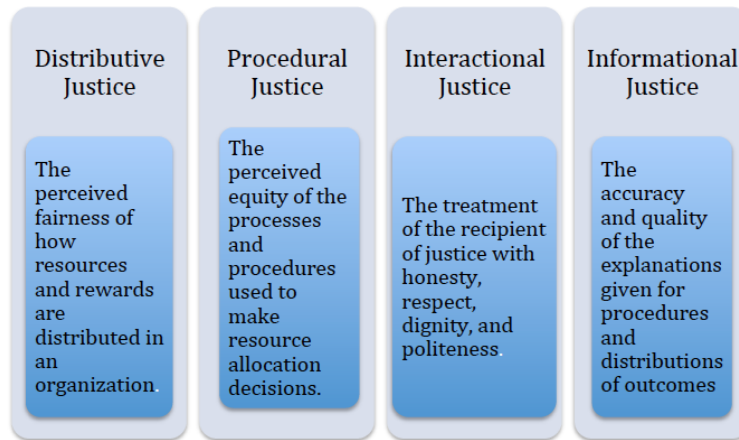


Figure 4.11: Distributive, Procedural, Interactional, and Informational Justice

Distributive fairness is concerned with whether or not employees believe that the outcomes they receive are fairly distributed to employees. Procedural fairness is concerned with whether the decision processes leading to these outcomes are just. Interactional fairness is the perception of employees that they are treated with dignity and respect. Informational fairness describes the extent to which employees believe they are provided with adequate explanations for decisions. As we will see, all four types of fairness are crucial determinants of the motivation to work hard and persist in the attempt to accomplish goals (Colquitt, 2001). Example items used in measuring each type of fairness is described in table 4.4. Sample items used for each type of justice are presented in table 4.4.

Justice Dimension	Sample Item
Procedural Justice	Have you been able to express your views and feelings during these procedures? Have those procedures been free of bias? Have you been able to appeal the (outcome) arrived at by those procedures?
Distributive Justice	Is your (outcome) appropriate for the work you have completed? Is your (outcome) justified, given your performance? Does your (outcome) reflect the effort you have put into your work?
Interpersonal Justice	Has (he/she) treated you in a polite manner? Has (he/she) treated you with respect? Has (he/she) treated you with dignity?
Informational Justice	Has (he/she) explained the procedures thoroughly? Were (his/her) explanations regarding the procedures reasonable? Has (he/she) been candid in (his/her) communications with you?

Table 4.4: The Four Dimensions of Justice and Sample Items.



## Distributive fairness

Imagine a situation in which an employee discovers that coworkers that he considered his equals in terms of such factors as job type, tenure, and training made much higher salaries. How would the employee react? The employee probably would respond with surprise and anger. He might even say that "Well, because I am doing the same work as Joe but making less money, I will simply not work as hard." Because the employee perceives that he and the coworkers are putting the same amount of work into their jobs (inputs) but receiving quite different salaries (outcomes), that the situation is unfair. One possible response to this inequity is to reduce inputs; that is, because the employee received less, he produces less. If the employee felt that there is no resolution to the problem, he might eventually quit his job and seek employment elsewhere.

Adams theory of distributive justice. More formally, this process is labeled a social exchange process (Adams, 1965; Homans, 1961). The foundation for this process is that people make investments (inputs; typically work of some sort) for which they expect specific rewards (outcomes; often money). People typically have predetermined expectations about how much and what types of inputs are required for certain outcomes. They evaluate the fairness or equity of their inputs and outcomes through interactions with relevant others in which direct comparisons between self and relevant others determine whether the exchange is favorable. Adams' (1963; 1965) equity theory is the most widely used social exchange theory in organizational research, and has focused mostly on the effects of workers' reactions to organizational compensation decisions.

The two major components of Adams' equity theory are inputs and outcomes (see figure 4.12). Inputs are those tangible and intangible commodities a person brings to the exchange relationship. Examples of inputs are effort at work, training, education, and experience. Outcomes are the products of the exchange. Examples of outcomes include pay, bonuses, promotions, and recognition. According to Adams, people weigh the importance of their different inputs and outcomes and sum across them. The total inputs and total outcomes between a person (p) and a relevant other person or comparison other (o) are compared in the form of a ratio:

A state of equity exists when the ratio of the person's inputs and outputs is equal to the other's ratio of inputs and outcomes. Inequity exists when the person's ratio is less or greater than the other's ratio. The following two figures visualize the process involved in judging equity. The first, describes the process as beginning with an evaluation of one's own inputs and outcomes. Following this individual picks a relevant comparison other and computes the ratio of that individual's inputs to outcomes. The situation is perceived as equitable if the ratio of the person is the same as the ratio of the comparison other. The situation is perceived as inequitable if the ratio is either less than or greater than the ratio of the other.

In the weighing of inputs and outcomes (outputs) the person could compare himself or herself to either a specific other person or to a category of others. For example, a person

might compare the ratio of what she is putting into a job and what she is getting as outcomes against the ratio of what she believes workers in general are putting into their work and getting. As depicted in the next figure, the person weighs inputs and outputs (outcomes) and then compares this ratio to the comparison other or others.

Recent discussions of the rising inequality in the United States and other countries have focused attention on how the perception of unfairness can damage an entire society. Some economists and other social scientists have argued that the widening gaps between the richest in a society and the middle and lower socioeconomic classes are leading to a variety of ills including violence, demoralization, and alienation. Based on Adams' equity theory, one could propose that people compare their own personal situations with society as a whole or possibly one category of persons such as the upper classes. The waitress at Joe's Cafe perceives that she works six days a week, 10 hours a week for less than minimum wage while many others do a fraction of the work but earn millions. The following links are to videos describing this issue in Asia, the UK, and the US.

<http://www.youtube.com/watch?v=XjlyFmgLjtc>

[http://www.youtube.com/watch?v=uM\\_MhNEk9Ic](http://www.youtube.com/watch?v=uM_MhNEk9Ic)

<http://www.youtube.com/watch?v=y-lXJaEVecY>

There are three especially important assumptions underlying equity theory and the equity formulas. First, the equity formulas do not imply that the amounts of input and outcome for the person and the other are equal, but that the relative amounts (or ratios) are equal. For example, Sally may not work as hard as Don, but if she also receives a lower salary than Don, then a state of equity exists. Second, the theory assumes that perceptions of equity or inequity occur in reference to whatever comparison other or others that an individual chooses. Employees in a company may receive very little reward for the work they do relative to upper management, but employees who do not choose upper management as the comparison other will not feel cheated. Third, the equity or inequity expressed by the formulas does not imply that equity or inequity exists in any objective sense. Sally may perceive that she does not work as hard as Don, although her supervisor or other coworkers may disagree. Equity (or inequity) is totally perceptual and highly subjective.

Similar to the homeostatic model presented for need theories, if a state of inequity exists people attempt to restore equity. There is more than one way they can attempt to achieve this. Adams (1965) described six different methods of restoring equity:

1. Alter inputs. Example: Change the quantity or quality of work. If you believe that you are being paid less than others doing the same quantity and quality of work you might decrease the quantity and quality of your work.
2. Alter outcomes. Example: Change the amount of compensation for work. If you believe that you are being paid less than others doing the same quantity and quality of work you might ask your supervisor for a raise.

3. Leave the field. Example: Turnover is an extreme reaction to perceived inequity; absenteeism is a less extreme reaction. If you feel that you are receiving less than is equitable, you may quit your job and seek a more equitable situation.
4. Cognitively distort inputs or outcomes. Example: Reevaluate work so that inputs seem less or greater than previously. Given that employees often lack information on how they are paid relative to others, this is a very common way of restoring equity. We may simply change our perceptions of our situation and the situation of others.
5. Try to change the inputs or outcomes of the comparison other. Example: Convince the comparison other to change the quantity or quality of his or her work. Often there are group norms for productivity.
6. Change the comparison other. Pick a comparison other that will make you feel better about your ratio of inputs to outcomes. To use an extreme example, if I feel that I am underpaid relative to inputs, in comparison to my fellow workers, I might stop thinking about them and instead use “downward comparison” and compare myself to someone in the workplace who is much worse off.

Research. The Adams theory of distributive justice has been tested in both laboratory experiments and in field, correlational research. The experimental tests have manipulated inputs and outcomes to create conditions of inequity. The effects of inequity are then measured for the performance of very simple tasks such as the proofreading of manuscripts. The use of simple tasks that almost everyone can perform with minimum preparation is to ensure that differences in performance reflect motivation rather than ability.

In addition to the experimental tests of the theory field studies have included employee ratings of how fairly they believe important outcomes such as salary are distributed in their organizations.

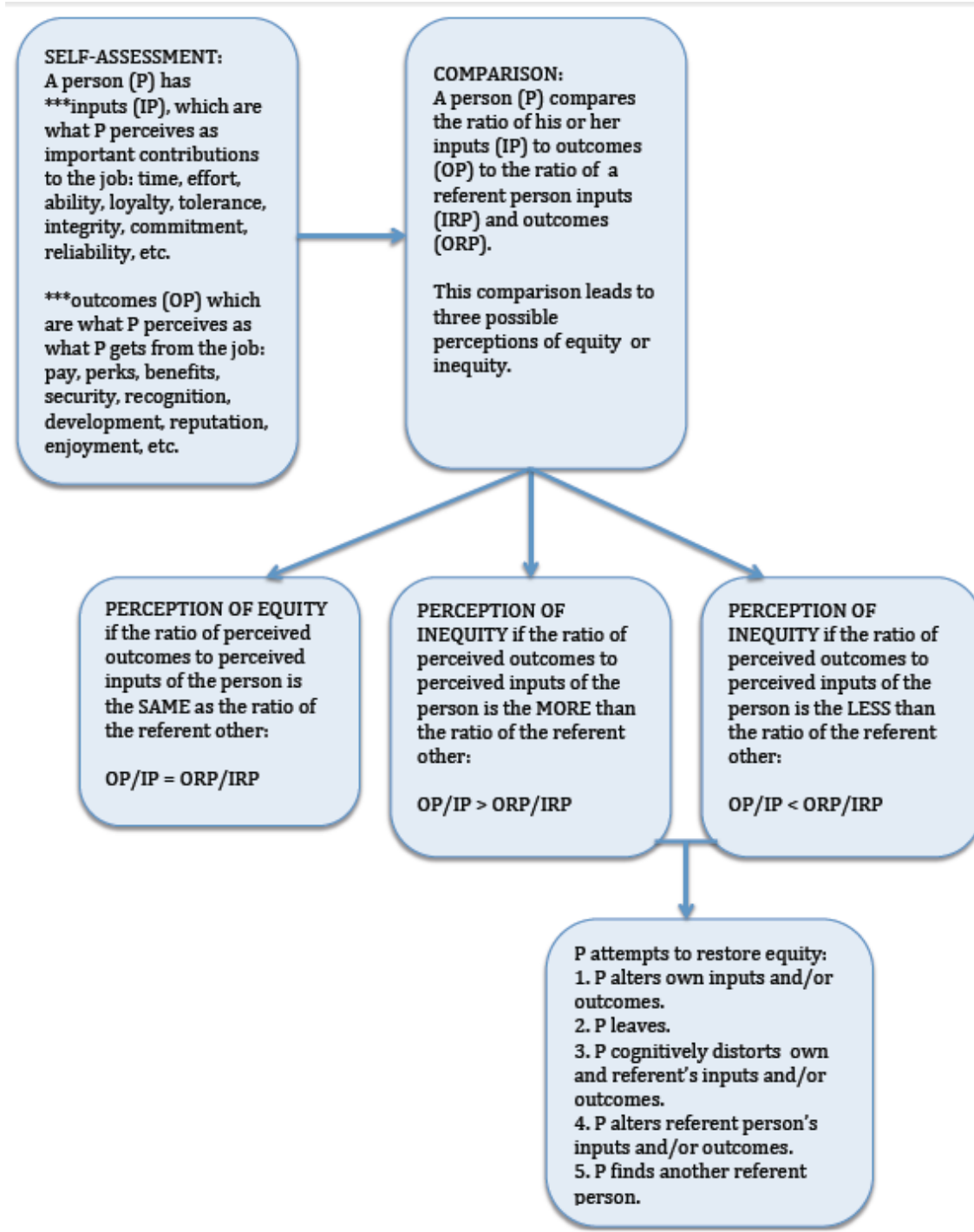


Figure 4.12: Essential Components of Adams' Equity Theory

1. Tests of underpayment and overpayment inequity. A unique aspect of the Adams theory is that under some circumstances, perceived inequity is hypothesized to produce higher motivation and performance than perceived equity. In testing this nonobvious hypotheses, researchers have used two different perceived inequity manipulations: qualifications and circumstances. In the qualifications manipulation, subjects are told that

they are either underqualified or overqualified for the job, and that the payment they receive will not reflect their qualifications. In the circumstances manipulation, subjects are told that because of budgetary factors the experimenter will pay them either more or less than promised. Regardless of the type of equity manipulation, subjects are supposed to attempt to restore equity by either decreasing or increasing the quality or quantity of their inputs. Psychologists have experimentally tested equity theory under two types of compensation systems: piece-rate and hourly payment. Piece-rate refers to payment according to the number of products produced, and hourly refers to paying the participants for the number of hours worked. Table 4.5 summarizes the specific equity predictions according to the type of equity manipulation and compensation system.

Compensation	Type of Inequity	
	Overpayment	Underpayment
Piece-rate	Workers overpaid by piece-rate will provide fewer units of higher quality than equitably paid employees	Workers underpaid by piece-rate will provide a large number of low-quality units in comparison with equitably paid employees.
Hourly	Workers overpaid by the hour produce more or higher quality output than equitably paid employees.	Workers underpaid by the hour produce less or poorer quality output than equitably paid employees.

Table 4.5: Equity Theory Predictions of Worker Reactions to Inequitable Payment.

Whereas the support for the overpayment predictions are mixed, support for the underpayment predictions are much more consistent. In general, the reviews of empirical research support equity theory predictions, particularly in the piece rate and hourly compensation underpayment conditions (Campbell & Pritchard, 1976; Goodman & Friedman, 1971). Not surprisingly, the findings are less consistent in supporting counterintuitive overpayment condition predictions. Researchers have offered two explanations for the inconsistent results in the overpayment condition (Campbell & Pritchard, 1976; Goodman & Friedman, 1971). First, the overpayment manipulation seems to require a threat to the participants' self-esteem. Studies that have used the circumstances manipulation in which they are told that budgetary restrictions prevent them from receiving an equitable level of pay have reported less support for equity theory predictions in the overpayment condition (Pritchard, Dunnette, & Jorgenson, 1972; Valenzi & Andrews, 1971). On the other hand, telling participants that they lack the qualifications for the task is a direct threat to self-esteem and seems to result in more support for overpayment predictions. However, participants may work harder not to restore equity (i.e., produce higher quantity and quality to justify their higher pay) but rather to prove their capabilities and defend their self-esteem (Andrews & Valenzi, 1970; Weiner, 1970). A second reason for the mixed results in tests of overpayment is that most people are likely to rationalize overpayment. Workers in real organizations are rarely told they are overpaid. A more likely outcome is that they adjust their perceptions of their

inputs and outputs so that they match. As the result of this rationalization they come to believe they are receiving what they deserve (Locke, 1976).

To summarize the research testing the underpayment and overpayment hypotheses of the Adams equity theory:

- \* The predictions of Adams equity theory are generally supported.
- \* The predictions for underpayment receive stronger and more consistent support than the predictions for overpayment.
- \* Individual differences moderate the extent to which people respond to overpayment inequity as predicted in the theory. One such moderator is moral maturity.

2. Other norms for distributive justice. Mowday (1991) has discussed four basic conceptual weaknesses of Adams' equity theory that point to directions for future theory refinement and research. They include the need for a broader conceptualization of equity, alternative methods of resolving equity other than changes in input, ambiguities about the choice of a comparison other, and individual differences in equity resolution.

The "equity norm" is deeply rooted in early socialization; people especially in North American and many European societies believe that organizations should compensate people according to their merit. However, other norms, such as equality and responsiveness to needs, also exist (Leventhal, 1976). If bonuses are distributed equally to employees in an organization (a common occurrence), then the distribution of rewards follows an equality norm. If bonuses were distributed according to need, then the employee with six children would receive the largest bonus. Although use of a needs norm seems rather unusual, one of the authors observed an organization that used need to justify larger bonuses to male employees with dependents. It is obvious that the blanket assumption that only the equity norm guides workers and organizations is naive. Research is needed to explore when norms for equity, equality, and need are activated and influence perceptions of fairness.

3. Cognitive distortions of inputs and outcomes. It is ludicrous to assume that people are so simplistic that they resolve perceived inequity only through altering their inputs. In fact, as already discussed, Adams' (1965) original conceptualization included six different methods of equity resolution. Unfortunately, researchers have failed to capture the complexity of equity resolution because they have concentrated solely on behavioral measures, such as quality and quantity of input. In a laboratory experiment testing Adam's equity theory, an overpayment situation was created and the effects were observed over several sessions (Lawler, Koplin, Young & Fadem, 1968). Participants initially resolved overpayment inequity by increasing the quality of their work, but in later sessions, subjects enhanced perceptions of their qualifications to resolve the inequity. Cognitively distorting inputs to match outputs is undoubtedly commonplace in organizations. In a field demonstration of cognitive distortion, clerical workers cognitively reevaluated their outcomes in response to underpayment inequity (Greenberg, 1989). After a pay cut, these workers increased the perceived importance of their work environment in contributing to their payment equity. Clearly, until researchers have

explored other methods of equity resolution equity theory will remain a partially developed theory.

4. What determines choice and impact of the referent? In most of the laboratory studies that have tested equity theory predictions, subjects were provided with a comparison other. The focus of the participant is limited to a referent that is assigned by means of experimental instructions. However, in the outside world the referents are not so obvious and are subject to a greater extent to the discretion of the employee. In his original theory, Adams hypothesized that people will choose similar others in one's work situation as the basis for comparison of inputs and outcomes. The implication is that the more similar the comparison other, the more attractive the referent and the more powerful the impact of judged inequity. In an experimental test of this notion, researchers manipulated the attractiveness of the referent by telling the subject that the referent other's attitudes were either similar or dissimilar to the subject's attitudes (Griffeth, Vecchio, and Logan, 1989; see figure 4.13). Consistent with predictions, participants in the overcompensation condition were more likely to perceive their own performance as higher if they were overpaid than if they were underpaid or equitably paid. Supposedly the self-perception of higher performance restored equity. This only occurred if the referent was similar to them. If the referent was dissimilar, the participants did not differ in their self-perceived performance as a function of the level of payment they received relative to the referent.

People do not always choose other individuals in comparing their inputs and outcomes. Goodman (1974) classified comparison others into three categories: similar others, self-standards, and system referents. In Adams' theory, workers were described as choosing similar others as the individuals they would use for comparing their situation (e.g., How does my situation compare to that of other similar workers?). These are persons who sufficiently similar to the person to provide a comparison. Self-standards refer to standards people set for themselves, such as comparisons of past and present work inputs. One common example is the individual who focuses on how the current situation compares to past situations (e.g., I'm making more now for what I do than I was last year and how does it compare to what I personally want to obtain?). System referents refer to implicit or explicit expectations between the worker and his or her organization, which typically begin when the worker is hired (e.g., How much am I making in salary compared to how my employer is doing in terms of profits and top management salaries?). One can also distinguish between referents that are outside the work situation (e.g., How are workers in other companies doing compared to me?) and those internal to the work situation (e.g., How are workers in my company doing compared to me?). There is some evidence that in evaluating the fairness of one's pay workers are most likely to rely on comparisons with other workers outside their organization in similar or related occupations (Dornstein, 1988; Bygren, 2004). In a study involving Swedish workers, Bygren (2004) found that comparisons with coworkers and one's own past pay were of minor importance in determining satisfaction with pay.

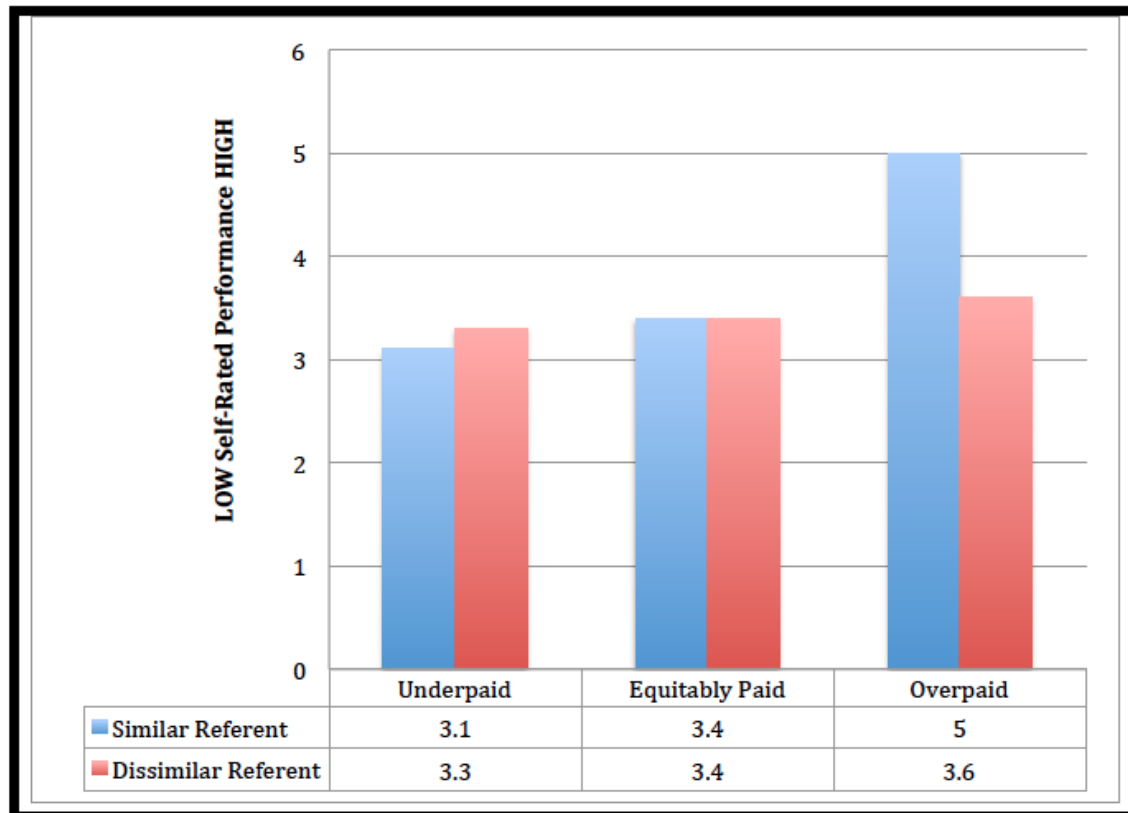


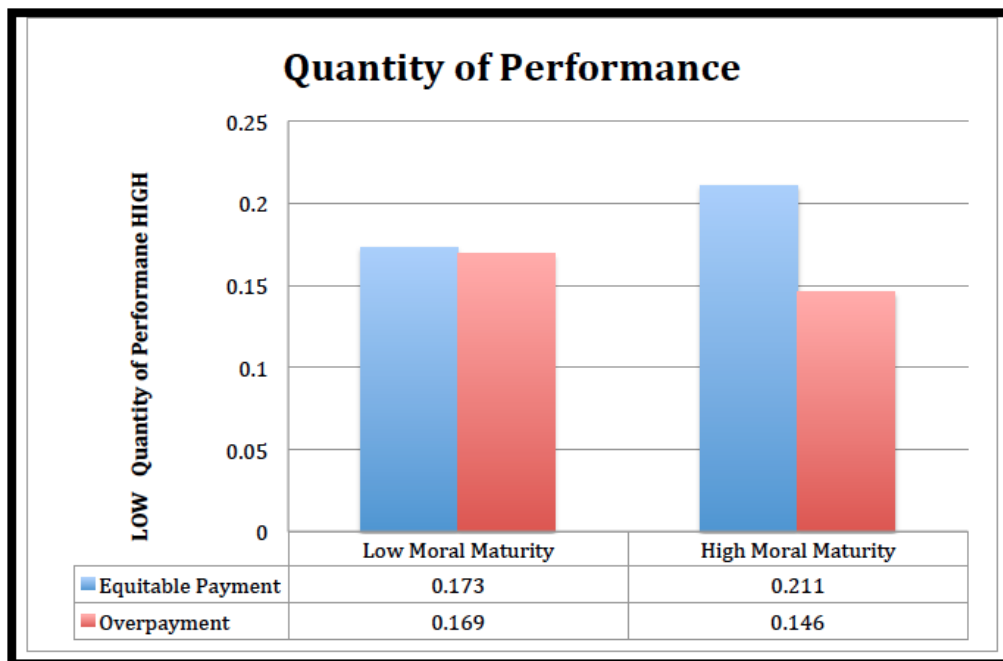
Figure 4.13: Self-rated Performance as a Function of Equity of Payment and Similarity of the Referent to the Participant

The use of external referents would seem to depend on how much access the employee has to salary information. To the extent that the organization prohibits disclosure of salaries, employees judge the equity of their compensation by using external referents such as the salaries in other organizations. Also, employees differ in their skill in obtaining comparison information and those who are more educated may have more success in finding good external referents. Goodman (1974) found that those managers with more education tended to use external referents, or comparison others outside their organization. The work on choice of referent suggests that testing equity theory only with similar "other" referents in the same work situation does not capture the essence of the equity resolution process and that researchers need to give more attention to comparisons with external referents. Researchers also need to give more attention to the extent of fluidity in choice of referents. Do workers stick with the same referents in judging the fairness of their situation or do they shift what they use as a comparison over time and situation perhaps as a way of resolving the inequity?

5. Individual differences. Given the complex judgments in which people must engage to resolve inequity, equity theory is indeed a theory of the individual. It is therefore surprising that little research has examined individual differences in reactions to inequity. One individual difference variable is a person's locus of control (Rotter, 1966). Individuals with an internal locus of control tend to perceive events in the world as being



under their control and this belief possibly inclines them to take action in resolving perceived inequities rather than resort to cognitive distortions of inputs and outcomes (Mowday, 1991). Moral maturity is another possible individual difference variable influencing how people resolve piece-rate overpayment. In one of the more interesting laboratory experiments on this topic, people who scored high on a measure of moral maturity were found to be more sensitive to overpayment inequity (Vecchio, 1981; see figure 4.14). Those individuals low on moral maturity attempted to maximize their outcomes and were not as concerned with equity resolution (see also Kohlberg, 1968). Specifically, participants high in moral maturity behaved according to equity theory predictions; they produced less with higher quality than equitably paid subjects. Subjects low in moral maturity did not conform to overpayment predictions. This rather provocative experiment underscores the potential importance of individual differences in understanding the process of equity resolution.



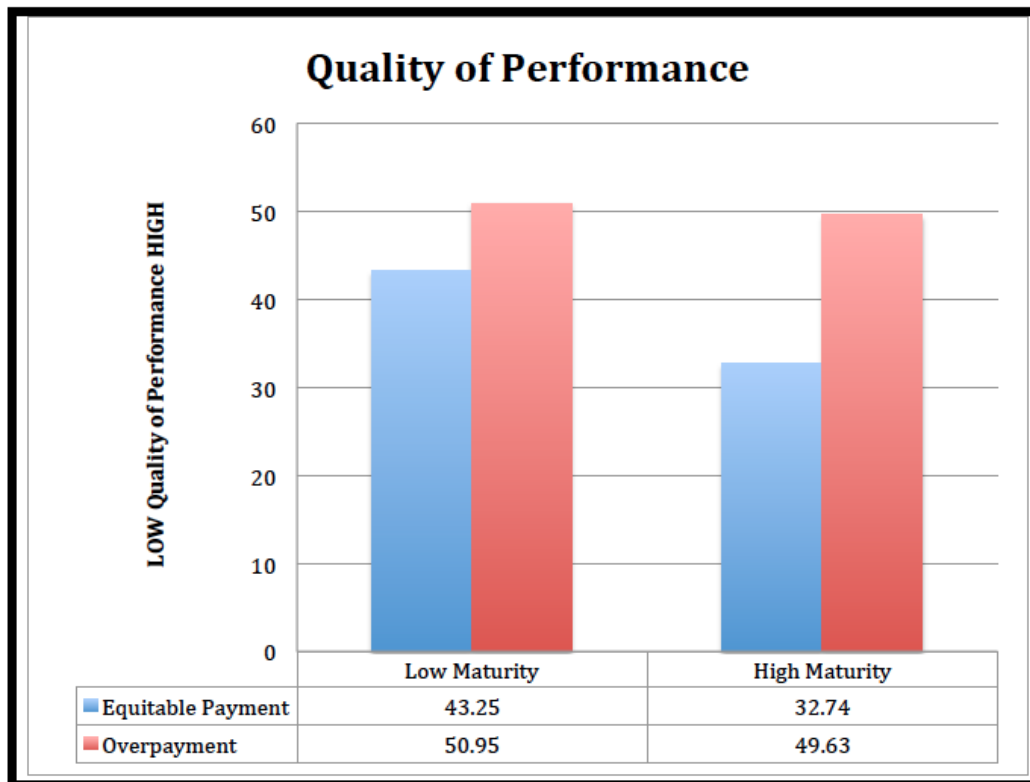


Figure 4.14: Interaction of moral maturity X equity conditions on quantity and quality of performance.

Correlational findings. So far the discussion has focused on the laboratory experiments conducted to test this theory. There is also a large amount of field correlational research examining the perceived fairness of the distribution of outcomes and various outcomes (table 4.6). The results show that despite the factors shown in laboratory experiments to moderate reactions to inequity, a variety of negative outcomes are associated with perceptions of inequitable outcome distributions. The experimental research findings show that it is possible for people to experience overpayment inequity and then work hard to restore equity. These correlational findings indicate, however, that employers should focus on making sure that the distribution of outcomes is perceived as fair rather than attempting to motivate people by creating feelings of inequity. Perceptions of distributive inequity are associated with lower levels of satisfaction, trust, organizational commitment, organizational citizenship behavior, and performance. Perceptions of distributive inequity also are associated with negative reactions such as withdrawal and other negative reactions to their work and organizations.

Outcome	k	N	r <sub>uc</sub>	r <sub>c</sub>
Individual level analyses <sup>1</sup>				
Satisfaction with outcome	28	9,321	.52*	.61
Job Satisfaction	24	57,515	.55 *	.68
Organizational Commitment	24	27,805	.42*	.51
Trust	8	1,735	.48*	.57
Evaluation of authority agent	13	16,963	.53*	.59
Organizational Citizenship Behavior (Individual)	6	2,633	.13*	.15
Organizational Citizenship Behavior (Organizational)	5	903	.20*	.25
Withdrawal	18	15,888	-.41*	-.50
Performance	13	2,294	.13*	.15
Negative Reactions	13	3,782	-.26*	-.30
Collective level analyses <sup>2</sup>				
Effectiveness	9	4,383	.32*	.42
Attitudes	4	1,885	.43*	.55
Processes	5	2,752	.30*	.38
Performance	6	958	.39*	.50

K = number of correlations; N = number of participants; r<sub>uc</sub> = mean uncorrected correlation weighted by sample size; r<sub>c</sub> = corrected correlation; \* = confidence interval for the correlation excluded zero.

Table 4.6: Correlations Between Distributive Justice and Outcomes Found in Meta-Analysis

### Procedural fairness

Distributive justice is concerned with whether the division of rewards among people is fair. Procedural justice is concerned with whether the division was fairly decided. One could have distributive justice without procedural justice, procedural justice without distributive justice, both procedural and distributive justice, and neither procedural nor distributive justice.

Attributes of fair procedures. There are norms that define whether the processes in making decisions are fair or not.

1. Consistency. Decisions that follow consistent guidelines are judged fairer than those that are inconsistent. Assume, as an example, two instructors set down as a rule that there are no make-ups for missed assignments but that you can drop the lowest of the assignments instead. One instructor consistently follows this rule whereas the other makes exceptions. Students are more likely to perceive the instructor who follows the rule consistently as procedurally just. A student may perceive this same instructor as unfair if the instructor told the student that a makeup exam is not permitted. In this case, the student feels unfairly treated, but the inequity results from a violation of distributive justice rather than procedural justice. Consequently, workers could perceive a manager as

providing a fair distribution of outcomes but using unfair procedures in making these distributions, or vice versa. The two-component theory of fairness, which we will discuss later, hypothesizes that distributive justice moderates the extent to which workers react to procedural unfairness. There is some evidence that when there is distributive fairness, procedural justice does not influence attitudes and behavior as much as when there is distributive unfairness. According to this research, assessment of whether outcomes are allocated fairly is the first step and if workers perceive unfairness they proceed to assessing procedural fairness of the situation before acting on the unfairness.

2. Justification. If the instructor provides a justification or explanation for the refusal to allow a make-up exam this is also likely to help create a perception of procedural fairness. In general, decision makers who provide justifications for their decisions are seen as fairer than those who do not provide justifications. This aspect of procedural justice is considered the core component of informational fairness.

3. Voice. This is another important factor defining procedurally fair decision processes. By voice we mean that the employee has a chance to state his or her opinion and provide input. It does not necessarily mean that the employee actually makes the decision. A supervisor who shows bias against a particular group of employees is likely to undermine procedural fairness for those who benefit as well as those who do not benefit.

4. Objectivity. Showing impartiality and objectivity are very important components of procedural fairness. If the supervisor bases the decision on an ample amount of objective information, the decision is seen as more procedurally fair than if the decision is highly subjective and based on little data. One important benefit of having rules and procedures in a bureaucracy is that employees will see the decisions as impartial rather than based on personal likes and dislikes.

5. Availability of repeal. Still another characteristic of procedural fairness is the availability of appeal. If an instructor does not allow students to question the accuracy with which an exam was graded, the students are likely to perceive less procedural fairness than if the instructor responds to their questions.

The results of a meta-analysis summarized in table 4.7 shows that perceptions of procedural justice are beneficial across a variety of outcomes. To the extent that employees report that there is procedural justice they are more satisfied, committed to the organization, and trusting. They also have higher performance and show less negative reactions.

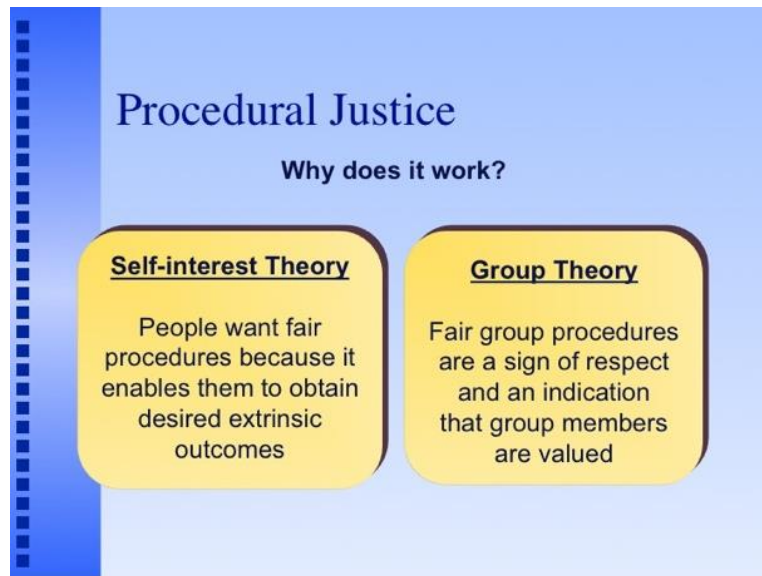
The research on procedural justice has supported the importance of perceived fairness of the decision processes used in distributing outcomes. As indicated in table 4.7, employees who report that procedures are fair are more satisfied with their jobs and supervision, and more trusting in and committed to their organizations. They are also more likely to engage in citizenship behavior and perform their jobs effectively and less likely to withdraw from the organization.

Outcome	k	N	r <sub>uc</sub>	r <sub>c</sub>
Individual analyses <sup>1</sup>				
Satisfaction with outcome	30	8,073	.40*	.48
Job Satisfaction	40	31,774	.51*	.61
Organizational Commitment	53	33,455	.48*	.57
Trust	24	4,522	.52*	.61
Evaluation of authority agent	33	20,034	.56*	.64
Organizational Citizenship Behavior (Individual)	15	4,414	.19*	.22
Organizational Citizenship Behavior (Organizational)	15	3,176	.23*	.27
Withdrawal	39	24,273	-.36*	-.46
Performance	30	8,317	.30*	.36
Negative Reactions	27	6,275	-.27*	-.31
Collective level analyses <sup>2</sup>				
Effectiveness	34	3,429	.26*	.34
Attitudes	14	1,488	.32*	.41
Processes	18	1,727	.30*	.38
Withdrawal	6	802	-.17	-.17
Performance	7	1,123	.25*	.32

K = number of correlations; N = number of participants; r<sub>uc</sub> = mean uncorrected correlation weighted by sample size; r<sub>c</sub> = corrected correlation; \* = confidence interval for the correlation excluded zero

Table 4.7: Correlations between Procedural Fairness and Outcomes Found in Meta-Analysis

Explanations for procedural fairness effects. There are two primary explanations for why procedural justice has all these beneficial effects and procedural injustice has such negative consequences. One possibility is that procedural justice is the prelude to achieving positive extrinsic outcomes. People generally feel that fair procedures will allow them to achieve more benefits than unfair procedures. This is the so-called self-interest theory of procedural fairness. The other explanation, the group theory, states that procedural fairness is a sign that the employer or other decision maker positively regards the group to which the individual belongs. For instance, allowing voice is tantamount to recognizing that the opinions of the employee are worth listening to and that the employee is competent enough to form a reasonable opinion.



### Interactional fairness

Most of the research on justice has examined procedural and distributive justice, but two additional types of justice appear distinguishable and influence the motivation of employees. One of these is interactional fairness. This is very close to procedural justice but some researchers consider it a distinct and separate basis for employee perceptions of fairness (Bies, 2005). The reader can no doubt remember times when situations were fair in terms of distribution of outcomes and the procedures used in making the distributions. Yet, the treatment received was lacking in dignity, social sensitivity, and politeness. For instance, a supervisor could hand out the yearly bonus check to employees based on an objective, unbiased performance appraisal procedure. Distributive fairness could be assured by making sure that the bonuses are proportional to the effort and outcomes of the employees receiving them. At the same time the supervisor could interact with those receiving them in a rude manner, perhaps conveying an attitude that none of them really deserved what they were receiving. Likewise, the procedures could be lacking in objectivity and the distributions inequitable but a supervisor could treat employees with sensitivity and respect. Basically interpersonal justice is the more informal, human side of justice that reflects the social skills of the supervisor, whereas distributive and procedural justice are the formal components that are originate from organizational structure.

In addition to directly influencing employees, interactional justice also appears to moderate the impact of procedural and distributive justice. In one study of strategic business alliances in China, procedural justice more positively affected the performance of the alliance when the parties in the alliance were treated with dignity and respect (Luo, 2007). Interpersonal fairness even appears to have physiological determinants. One study found that interactional unfairness triggered the release of cortisol, a hormone that plays a central role in the body's response to stress (Yang, Bauer, Johnson, Groer, & Salomon, 2014). The results of a meta-analysis show that perceptions of interactional justice are associated with several positive outcomes including higher satisfaction, commitment, and citizenship (see table 4.8).

Outcome	k	N	$r_{uc}$	$r_c$
Individual analyses <sup>1</sup>				
Satisfaction with outcome	1	301	.19	--
Job Satisfaction	2	1,795	.31*	.35
Organizational Commitment	2	1,824	.16*	.19
Trust	--	--	--	--
Evaluation of authority agent	5	2,534	.57*	.62
Organizational Citizenship Behavior (Individual)	2	1,794	.23*	.29
Organizational Citizenship Behavior (Organizational)	--	--	--	--
Withdrawal	2	316	-.02	-.02
Performance	2	389	.03	.03
Negative Reactions	27	6,275	-.27*	-.31
Collective level analyses <sup>2</sup>				
Effectiveness	11	1,665	.38*	.50
Attitudes	8	1,395	.50*	.64
Processes	6	1,155	.38*	.50
Performance	7	1,123	.26*	.34

K = number of correlations; N = number of participants;  $r_{uc}$  = mean uncorrected correlation weighted by sample size;  $r_c$  = corrected correlation; \* = confidence interval for correlation excluded zero.

Table 4.8: Correlations Between Interactional Justice and Outcomes Found in Meta-Analysis

### Informational fairness

Greenberg (1990) conducted a quasi-experiment demonstrating the effects of procedural inequity on another outcome, employee theft (see figure 4.15). The employees in three plants in a company were compared on the amount of theft that occurred over the same time interval. In one plant, the plant manager announced a pay cut without providing adequate justification. The manager followed a script in which he told them the decision, gave a short reason, and then allowed very little time for questions and answers. In the adequate justification plant, the plant manager announced the same pay cut but provided a thorough explanation. In a third, control condition, there was no cut in pay to explain.

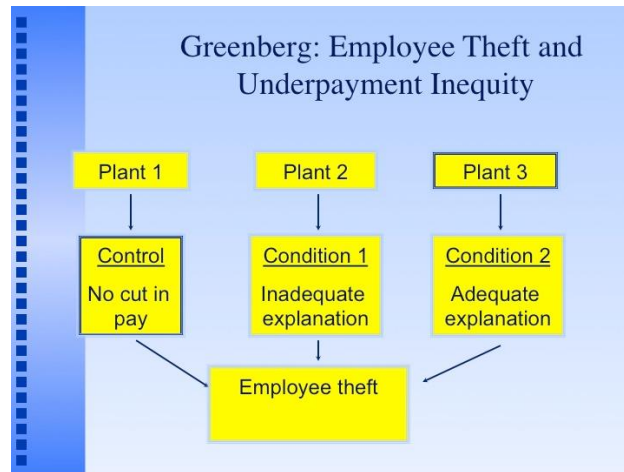


Figure 4.15: Greenberg's (1990) Study of the Effects of Underpayment Inequity and Justification on Employee Theft

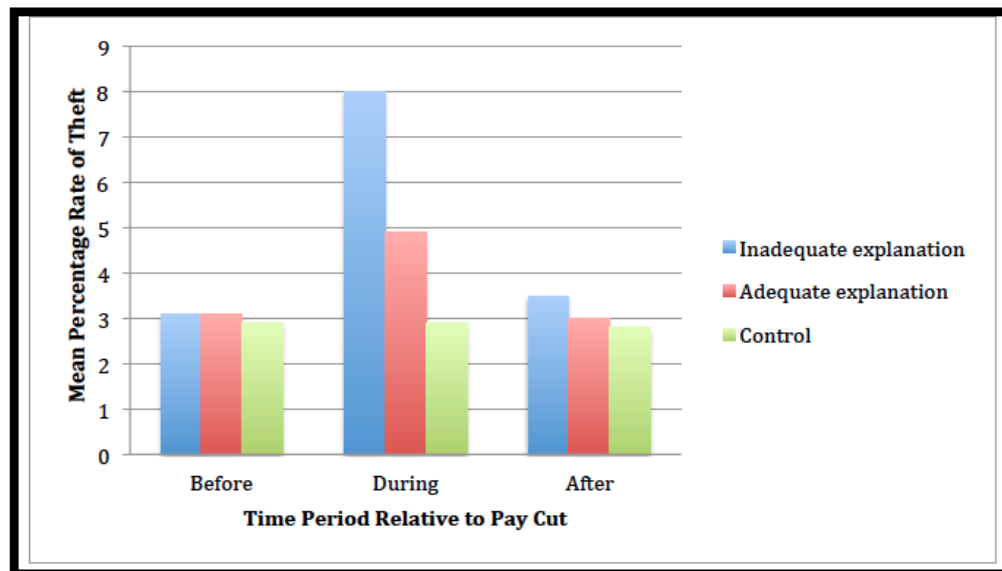


Figure 4.16: Rate of Theft as a Function of the Adequacy of the Explanation for a Pay Cut

As seen in figure 4.16, there was little difference on the amount of theft between the plant that received a pay cut with an adequate explanation and the plant that did not receive a pay cut. However, the plant that received a pay cut with an inadequate explanation showed a large increase in theft during the period in which pay was cut.

The research on informational justice consists of fewer studies than the research on distributive, procedural, and interactional justice. The findings of a meta-analysis of studies conducted so far found that similar to the other types of justice, perceived informational justice is positively associated with a variety of positive outcomes and negatively related to negative outcomes (see table 4.9).



Outcome	k	N	$r_{uc}$	$r_c$
Satisfaction with outcome	4	1,404	.27*	.30
Job Satisfaction	2	1,872	.38*	.43
Organizational Commitment	10	3,968	.26*	.29
Trust	3	487	.43*	.51
Evaluation of authority agent	9	3,210	.58*	.65
Organizational Citizenship Behavior (Individual)	2	1,883	.21*	.26
Organizational Citizenship Behavior (Organizational)	1	206	.18	--
Withdrawal	1	1,692	-.21*	-.24
Performance	4	1,063	.11	.13
Negative Reactions	8	2,731	-.29*	-.33

K = number of correlations; N = number of participants;  $r_{uc}$  = mean uncorrected correlation weighted by sample size;  $r_c$  = corrected correlation; \* = confidence interval for correlation excluded zero.

Table 4.9: Correlations Between Informational Justice and Outcomes Found in Meta-Analysis

### Inter-relationships among types of justice

How do the four types of justice interact to affect employee attitudes and behavior? The two-component model attempts to answer this question and the research so far has provided support. The two-component model of justice suggests that distributive fairness interacts with the other forms of justice in determining how employees respond to perceived fairness and unfairness. According to this theory, people first assess the fairness of procedures, the information that is provided, and their interpersonal treatment. If these are perceived as fair, they are not as bothered by an unfair distribution of outcomes. Where employees are most motivated to remedy injustices is where an unfair distribution of outcomes is coupled with unfair procedures, poor treatment interpersonally, and a lack of information (Skarlicki & Folger, 1997; Leung, Tong & Ho, 2004). When employees do not know the outcomes of others they may fall back on cognitive heuristics in judging how their outcomes compare to others. One type of heuristic is rooted in procedural justice. We may assume in the lack of information on outcomes that if the procedures are unfair and there is a lack of information provided by management that our outcomes are also unfair (van den Bos, Lind, Vermunt & Wilke, 1997). A similar heuristic also may exist for interpersonal and information justice.

Points to ponder:

1. Describe the four types of fairness? Do you think we need all three or could we combine some of them?

2. Adams equity theory proposes that both overcompensating and undercompensating employees can be used to motivate employees to work hard and perform more effectively. Under what conditions does the theory propose that each tactic could be used to accomplish these objectives? What are the problems with using inequity in outcome distributions to motivate employees to work harder and perform more effectively?
3. More than one type of norm exists for what constitutes a fair distribution of outcome. Describe the different norms for outcome distribution and the conditions in which they might be most salient.
4. If you were a manager of a group of employees what steps would you take to ensure procedural fairness? Distributive fairness? Interactional fairness? Information fairness?
5. Describe the two-component model of justice and its implications for how the various types of fairness might be combined in understanding and increasing worker motivation to perform effectively.

### Does Work Engage the Self?

Work can affect the way an employee thinks and feels about the self. This linkage of the self-concept with work is a crucial motivational component in finding ways to increase work motivation. So far the chapter has dealt with motivation as if it were a matter of cool calculations and perceptions. In examining goals, expectancies, fairness, and outcomes the employee was depicted as conducting a completely objective and rational analysis of the situation and acting accordingly. An employee calculates the extent to which working hard will fulfill important needs and the contingencies of working hard for obtaining these outcomes. They assess the expectancies and valences for various alternatives and chooses that option that has the best expected value. Goals are set for future performance and the employee assesses the acceptability and commitment to the goals. Goals that are acceptable and engage commitment lead to more effort to achieve the goal to the extent that it is difficult and specific. The fairness of outcome distributions, treatment, procedures, and information is similarly assessed and to the extent that they are perceived as fair, employees invest more effort, vigor, and persistence on their tasks. All of these processes can occur in an impartial manner in which employees coolly size up the situation and acts accordingly. What happens when the employee perceives that these factors have important implications for the way they define and evaluate the self? And what are the consequences of employees' self-concepts and self-evaluations for their behavior and attitudes? In other words, what happens when things become personal?

### Finding meaning through self-conception and self-evaluation

People make sense of the world around them by constructing mental models of the objects, events, and people in their environments. They are often not conscious of their mental models, and these models are seldom sophisticated. Nonetheless, the search for meaning is an integral component of what it means to be human. Making sense of work and the organizations in which they perform this work are at the core of this search for meaning. Additionally, making sense of the self and the connections of the self to work and organizations is at the core of how they make sense of the world of work. People

construct self-conceptions in which they attribute to themselves personal attributes such as intelligent, kind, hardworking, and aggressive. They derive these self-conceptions from their experiences at work and outside work. The core of how they think about themselves is probably set for most people at a relatively young age. People do not only think about but also evaluate the self. They have ideas about what they consider to be the ideal attributes and then judge the extent to which their self-conceptions are congruent with these ideals. To the extent that they fall short, the self-evaluation is negative. To the extent that they meet or surpass the ideal, the self-evaluation is positive. Self-evaluations and self-conceptions form around specific, situationally based attributes. For instance, people may form a self-conception and self-evaluation with regard to how well they perform a specific task in their work. Salespeople might see themselves as very good in face-to-face attempts to persuade clients but as not very good at keeping the office organized. People also form more general self-conceptions and self-evaluations. At the most general level are the entire collection of self-conceptions used by people to define themselves and their global self-esteem. Global self-esteem is how individuals feel about themselves in general. Low global self-esteem is a feeling of unworthiness, incompetence, and failure, whereas higher global self-esteem is a feeling of worthiness, competence, and success. The importance of the specific self-conception affects the extent to which experiences relevant to these situationally based self-conceptions affect global self-esteem.

### Theories of self-enhancement and self-maintenance

What are the consequences of the self-concept and self-evaluation for work motivation? Previous research and theory have emphasized the upside. People are described as exhibiting higher levels of motivation to achieve organizational goals if they work in organizations where they can fulfill the need for a positive self-evaluation through their work activities. Numerous theorists have brought attention to universal needs to enhance and maintain self-esteem. When organizations create conditions in which these needs are fulfilled and employees can feel good about themselves, high levels of motivation and performance follow. Also, work that allows the expression and maintenance of valued self-concepts benefits health, life satisfaction, and well-being. The emphasis in much of organizational theory has been on the benefits of high self-esteem in the form of increased persistence and vigor with which people engage in work activities and the more accurate perceptions they form of themselves and their situations. In an example of this self-enhancement position, Shamir (1991, p. 416) proposed that:

“general job motivation will be enhanced to the extent that:

1. Job-related identities are salient in the person's self-concept.
2. The job offers opportunities for self-esteem enhancement.
3. The job offers opportunities for increased self-worth.
4. Actions required on the job are congruent with the person's self-concept or can be performed in a way which is consistent with the person's self-concept.
5. Career opportunities on the job are congruent with the person's possible selves.

General job motivation will be lower to the extent that:

1. The job or its content contain elements that are detrimental to the person's self-esteem.
2. The job or its context contain elements that are detrimental to the person's self-worth.”

In another example, Sheldon and Elliott (1998) propose in their self-concordance theory that employees exhibit higher intrinsic motivation and more satisfaction to the extent that they are assigned goals that reflect their valued self-conceptions and “express enduring interests and values” (p. 482). They propose that when people pursue goals for self-concordant reasons they show more vigor and persistence than those working for controlled reasons. Moreover, those successfully achieving self-concordant goals experience more well-being and positive psychological outcomes than those achieving goals for controlled motivation. Those with initially high global self-esteem are more likely to pursue self-concordant goals than those with lower self-esteem. By contrast, goals are pursued for controlled reasons when external pressures and extrinsic rewards pressure require the person to pursue the goals or when goals are pursued to avoid shame, guilt or anxiety. Those with initially low global self-esteem are more likely to pursue goals in the attempt to prevent negative outcomes. Correlational research using a self-report measure of self-concordance provides some support for these hypotheses (Judge, Bono, Erez & Locke, 2005; Sheldon & Elliott, 1998).

At the same time that providing positive work environments allows workers to enhance their self-esteem and benefits the performance of organizational tasks, work environments that threaten self-esteem can have negative consequences. Based on the assumption that people have a basic need for self-esteem, Argyris (1962) argued that low self-esteem persons and people having to cope with work environments that threaten their self-esteem have little psychological energy to invest in the performance of their work roles because most of their energy is spent defending against further loss of self-esteem.

### Self-related constructs

Support for the self-enhancement position is provided in research showing that more positive self-evaluations are associated with higher motivation, satisfaction, and performance. These self-evaluations include self-efficacy expectations, global self-esteem, organizationally based self-esteem, and core self-evaluations.

Self-efficacy expectations. A self-efficacy expectation is the personal belief of persons that they can execute the behaviors necessary to perform tasks or goals. The concept of self-efficacy expectation was introduced by Bandura (1982) in his re-evaluation of the radical behavioral approach and BMod. He proposed that people did not mechanically modify their behavior in response to outcome contingencies. Humans think about the outcomes of their actions and part of this thinking is evaluating their capability of doing what they need to do to obtain outcomes. The measures of self-efficacy have varied across studies but Bandura recommended the use of a unipolar measure of confidence

that ranged from no confidence to complete confidence. There is some evidence that this is the preferred approach (Sitzmann & Yeo, 2013).

In an example of a study examining the relation of self-efficacy to performance, graduate students in business performed a managerial decision making task (Wood & Bandura, 1989). The participants rated on a ten-point scale (1 = no confidence at all to 10 = total confidence). The strength of self-efficacy for performance of the task was the sum of the nine confidence ratings. At the beginning of the simulation, half the participants were randomly assigned to a condition in which they were told that performance on the task reflected a basic cognitive ability that people do or do not possess. The remainder of the students were assigned to a condition in which performance on the task was described as an acquirable skill. Over task trials participants who believed the task was an ability demonstrated a progressive decline in self-efficacy whereas those told that it was an acquirable skill demonstrated an increase in self-efficacy. The correlation between self-efficacy and performance was .30 during the second block of trials and increased to .49 in the third and last block of trials.

The meta-analyses of the relation of self-efficacy to performance show that more positive self-efficacy expectations are indeed positively related to performance (Stajkovic & Luthans, 1998; Sitzmann & Yeo, 2013; see table 4.10). Positive self-efficacy expectancies apparently provide an advantage by encouraging more focus of attention and effort on effective task strategies whereas low self-efficacy expectations encourage a self-focus that diverts attention away from the task and depletes cognitive resources that could be devoted to effective strategies (Stajkovic & Luthans, 1998).

Despite finding an overall positive correlation between self-efficacy and task performance, there are some important caveats. For one, when the correlation is assessed using a between-person approach, the correlation is much higher than when a within-person approach is taken. In a between-person approach, the correlations are computed by measuring self-efficacy and performance for each individual participant and then computing the overall correlation. In a within-person approach the correlations are computed by measuring self-efficacy and performance across task trials for an individual and then computing the correlation for that individual. The within-person approach is more sensitive to the dynamics that occur over time and provides a more accurate picture of the relation of self-efficacy and performance. When examined as a within person process, the relation of self-efficacy to performance is found to vary over task trials and is not always positive. People set goals, form self-efficacy expectations for achieving these goals, show varying levels of effort and persistence in striving to accomplish their goals, monitor the discrepancy between their performance and their goals, and subsequently modify their behavior. Although the overall mean of the correlation between self-efficacy and performance is positive, there is a mix of negative, null, and positive correlations.

In their meta-analysis, Sitzmann and Yeo (2013) also found that when past performance of individuals in within-person approach were controlled, the effect of self-efficacy on future performance was minimal. They conclude that the correlation between self-

efficacy and performance using the within-person approach is spurious and that “self-efficacy is primarily a product of past performance rather than a driver of subsequent performance” (p. 558). In other words, the reason that people with self-efficacies perform better than those with low self-efficacies is that high self-efficacy persons have been more successful in the past. Moreover, they argue that “hiring people with high self-efficacy or boosting self-efficacy may not generate any return on investment because self-efficacy accounted for practically no variability in performance after controlling for potential confounds” (p. 562).

Type of correlational design	k	N	$r_{uc}$	$r_c$	Study
Between person correlation	38	5,414	.40*	.42	Sitzmann & Yeo (2013)
Within-person correlation	37	34,870	.21*	.23	Sitzmann & Yeo (2013)
Combined between- and within-person correlations	148	16,441	.38*	----	Stajkovic & Luthans (1998)

K = number of correlations; N = number of participants;  $r_{uc}$  = mean uncorrected correlation weighted by sample size;  $r_c$  = corrected correlation; \* = confidence interval for correlation excluded zero.

Table 4.10: Correlations between Self-Efficacy Expectations and Performance

Global self-esteem and organizationally based self-esteem. Global self-esteem is usually measured with a scale such as the Rosenberg self-esteem scale. In measuring the person’s evaluation of his or her total worth as a human, items are posed such as “All in all, I am inclined to feel that I am a failure” and “I feel that I have a number of good qualities.” The reader can take this scale and compare the results to test norms by going to:

<http://personality-testing.info/tests/RSE.php>

In an attempt to measure self-esteem that is specific to the feelings of worth associated with experiences in the organization for whom an individual is employed, Pierce, Gardner, Cummings and Dunham (1989) developed the Organization-Based Self-Esteem scale. This is a ten-item measure asking respondents to evaluate their value, worth, and effectiveness in the organizations in which they work. Respondents are to keep in mind the messages they receive from managers and supervisors and state the extent to which they agree or disagree with each of the following questions:

I count around here  
I am valuable  
I am important  
I am helpful  
I am efficient

There is faith in me.  
I am taken seriously  
I am cooperative.  
I can make a difference  
I am trusted

The basic theoretical proposition is that organizational practices convey messages to employees about their worth, and these messages shape how employees think about themselves as employees. To the extent that they have positive organization-based self-esteem, their motivation to work hard and their satisfaction with their jobs increase. A meta-analysis of the research using Global (or general) Self-Esteem and Organization Based Self-esteem (OBSE) found that both are positively related to a variety of organizational factors and outcomes, but that organization based self-esteem is more strongly related than global self-esteem (Bowling, Eschelman, Wang, & Kirkendall, 2010; see table 4.11).

Variable	Organizationally Based Self-esteem				General Self-esteem			
	k	N	$r_{uc}$	$r_c$	k	N	$r_{uc}$	$r_c$
Job complexity	7	2,414	.48*	.60	2	514	.18*	.21
Autonomy	7	2,254	.35*	.42	8	3,498	.18	.23
Leader consideration	5	1,120	.37	.43	---	---	---	---
Leader initiating structure	4	953	.43*	.58	---	---	---	---
Leader Member Exchange (LMX)	3	1,121	.49*	.55	3	494	.13*	.16
Psychological Ownership	3	822	.52*	.59	---	---	---	---
Organizational support	6	883	.53*	.59	---	---	---	---
Supervisor social support	4	1,651	.36*	.40	4	1,009	.19*	.25
Co-worker social support	2	1,624	.27*	.31	3	422	.21*	.31
General job stressors	4	964	-.36*	-.42	12	2,984	-.24*	-.31
Job insecurity	7	2,783	-.37*	-.44	2	513	-.24*	-.30
Job satisfaction	34	10,362	.47*	.57	33	11,792	.24*	.29
Affective Organizational Commitment	12	2,152	.51*	.60	3	2,489	.35*	.46
Normative Organizational commitment	2	282	.18	.21	2	291	-.01	-.01
Continuance Organizational Commitment	4	468	.22	.27	---	---	---	---
Job Involvement	2	359	.39*	.48	12	3,330	.10*	.13
Job Performance	12	2,020	.23*	.34	17	3,441	.12	.18
Organizational Citizenship Behavior	14	4,069	.31*	.38	3	585	.41	.58
Turnover Intentions	11	3,180	-.37*	-.44	11	5,479	-.17*	-.21
Depression	2	432	-.46*	-.51	20	12,006	-.42*	-.52
Physical symptoms	2	1,525	-.24*	-.28	17	12,108	-.18*	-.21

K = number of correlations; N = number of participants;  $r_{uc}$  = mean uncorrected correlation weighted by sample size;  $r_c$  = corrected correlation; \* = confidence interval for correlation excluded zero.

Table 4.11: Results of Meta-Analysis of Correlations  
Between Self-esteem and Other Variables.

Employees who perceive more job complexity, autonomy, support, psychological ownership, and supportive, structuring, and considerate leadership and less work-related stressors (e.g., role ambiguity) and job insecurity, also reported higher organization based self-esteem. In turn, higher organization based self-esteem was positively related to job satisfaction, performance, organizational citizenship behavior, organizational commitment, and physical and mental health, and negatively related to intentions to turnover and actual turnover. Of course the reader should heed the usual warnings about

correlation is not causation. Whether self-esteem is the cause, the effect, or the covariate of the other variables cannot be concluded from these correlations.

Core self-evaluations. The self-efficacy, global self-esteem, and organization-based self-esteem research focuses on self-evaluation of worth, competence, and other valued attributes. A somewhat different approach is taken in the core self-evaluation research. Judge and his colleagues propose that self-esteem is only one of several personality dimensions and that a higher-order construct subsumes both self-esteem and several other dimensions. Core self-evaluations are defined as the “bottom-line evaluations that individuals hold about themselves” and include self-esteem, beliefs about internal locus of control, emotional stability, and generalized self-efficacy (Judge & Bono, 2001, p. 80). Each of these four component traits is considered a separate psychological construct, but the authors hold that they all contribute to the higher order or cardinal trait of core self-evaluation. A scale to measure core self-evaluations was constructed that taps each of these component four traits contained these items (Judge, Erez, Bono & Thoresen, 2003).

1. I am confident I get the success I deserve.
2. Sometimes I feel depressed (reverse scored).
3. When I try, I generally succeed.
4. Sometimes when I fail I feel worthless. (reverse scored)
5. I complete tasks successfully.
6. Sometimes, I do not feel in control (reverse scored)
7. Overall, I am satisfied with myself.
8. I am filled with doubts about my competence (reverse scored)
9. I determine what will happen in my life.
10. I do not feel in control of my success in my career (reverse scored)
11. I am capable of coping with most of my problems.
12. There are times when things look pretty bleak and hopeless to me. (reverse scored)

The research using core self-evaluation measures tends to support the general hypothesis that more favorable perceptions of the work environment and more favorable work outcomes are associated with employee reports of positive core self-evaluations. Table 4.12 provides a summary of the results of a meta-analysis (Chang, Ferris, Johnson, Rosen & Tan, 2012). Employees with more positive core self-evaluations are more likely to perceive the organization as fairer and more supportive, as providing more autonomy and skill utilization, and as imposing fewer stressors. Core self-evaluations are also positively related to potential outcomes including satisfaction, commitment, intrinsic motivation, organizational citizenship, and task performance. Finally, core self-evaluations are negatively related to counterproductive work behavior, turnover intentions, and strain.

Not everyone is as sanguine about the construct of core self-evaluations (Chang, Ferris, Johnson, Rosen, & Tan, 2012; Chen, 2012). The critics argue that the theoretical basis for the notion of core self-evaluations is weak and confusing. Core self-evaluation is an aggregate construct consisting of separate and independent constructs. The reader will encounter other aggregate constructs in this text (e.g., emotional intelligence, employee engagement). The combining of independent variables and the treatment of them as if



they represent the same thing is always problematic. Theory is needed to identify the causal paths between each component construct and core self-evaluations and the potential mediating role of core self-evaluations. There is also confusion over whether other traits should be included in addition to beliefs about locus of control, emotional stability, self-esteem, and generalized self-efficacy. Extraversion, negative and positive affectivity, optimism, and other variables would seem to meet the criteria set forth by Judge and colleagues for inclusion. Still another criticism is that the higher order factor of core self-evaluations reflects response biases such as common method variance (see the chapter on research methods) rather than a substantive psychological construct.

Variable	k	N	$r_{uc}$	$r_c$
Job satisfaction	86	28,058	.31*	.36
Life satisfaction	33	7,087	.38*	.44
Affective organizational commitment	20	10,975	.25*	.30
Continuance organizational Commitment	5	3,763	-.17*	-.22
Normative organizational commitment	3	698	-.01	.14
Turnover intention	11	2,911	-.22*	-.26
Goal level	4	1,118	.16*	.22
Goal commitment	8	1,879	.33*	.42
Intrinsic motivation	12	2,351	.27*	.33
Task performance	38	9,553	.16*	.19
Fairness perceptions	13	2,546	.12*	.15
Perceived support	19	10,397	.22*	.26
Perceived job autonomy	7	2,502	.27*	.32
Perceived skill utilization	3	499	.22*	.27
Overall stressors	7	2,339	-.36*	-.43
Strain	28	7,585	-.35*	-.42
Organizational citizenship	16	3,002	.19*	.23
Counterproductive work behavior	16	4,313	-.15*	.17
Salary	5	8,826	.28*	.33

K = number of correlations; N = number of participants;  $r_{uc}$  = mean uncorrected correlation weighted by sample size;  $r_c$  = corrected correlation; \* = confidence interval for the correlation excluded zero.

Table 4.12: Results of Meta-analysis of Correlations  
Between Core Self-evaluations and Outcomes

### Limitations on self-enhancement

Most of the research and theory using self-concepts and self-evaluation as constructs tend to hypothesize that more is better. In other words, more positive self-concepts and self-evaluations are hypothesized to yield almost unlimited benefits to both the organization and the employee. This is a naïve position. For one, people desire to do more than enhance self-esteem. They also seek to verify and maintain their self-conceptions. Some

have even argued that there is a basic need for self-consistency that may lead low self-evaluation persons to reject positive outcomes and intentionally fail to confirm their negative self-conceptions (Dipboye, 1977; Korsgaard, 1996; Swann, Griffin, Predmore & Gaines, 1999). At the very least, the effective performance of a work role requires some realism in self-assessments. To believe that one possesses more of positive attributes than warranted by the evidence is likely to lead to task strategies that doom the employee to failure. Take, for example, employees who come to believe that they have very high levels of task ability and are confident that future success is ensured. Such employees may not be particularly bothered by failure and may even rest on past laurels. They may not attempt learn from past failures or take efforts to improve. The negative consequences of having self-evaluations are probably just as damaging as the negative consequences of having unrealistic low self-evaluations.

The research on self-concept and self-evaluation provides support for designing work environments that engage the self. Designing a work environment in which employees can express and develop those personal attributes that they hold as ideals seems likely to energize their efforts to achieve success in their work roles. It is important to note, however, that the engagement of the self-concept can have downsides in the form of distortions of the task and personal attributes. At the same time that organizations should promote positive self-images, they need to (1) provide diagnostic and objective feedback on performance to prevent distortions in perceptions of the work role and one's own knowledge, skills, and abilities, (2) set task goals to allow a realistic assessment of progress, (3) provide clear and accurate information on job requirements, and (4) encourage nonthreatening and constructive dialogues among employees so that they can learn from previous performances.

### Are Employees Intrinsically Motivated?

So far the discussion has focused on how to motivate through setting goals, providing positive consequences, shaping expectancies for what will occur if the employee works hard, making sure outcomes of hard work are positively valued by relating them to needs, and fairly treating employees. Suppose that all these things have been implemented and have succeeded in boosting the effort of employees. There is one more, very important question to ask: Are the employees intrinsically motivated? There is an important distinction between motivation that is internally driven and continues even in the absence of external inducements such as the carrot and the stick. One can get a donkey to move by offering a carrot and then whacking the animal with a stick if it fails to move. One could also get a human to do something or not do something through positive and negative reinforcement and punishments. But do these inducements work in the long run?

There are two perspectives on intrinsic vs. extrinsic motivation. Some practitioners and theorists say that intrinsic rewards set in motion an entirely different motivational state than extrinsic rewards. Among the first theorists to propose this distinction was Abraham Maslow. He believed that intrinsic motivation is essentially what occurs when people reach the top rung of the needs hierarchy and are motivated mostly by self-actualization needs. In contrast to the lower level needs which operate according to a homeostatic

process and driven by the attempt to reduce deficiencies, the more people satisfy self-actualization needs, the more they want. The other perspective is radical or strict behaviorism. This approach proposes that there is one underlying motivational dynamic and that apparent differences between intrinsic and extrinsic motivation are simply a result of differences in reinforcement schedules. What we call intrinsic motivation, in which people are driven to persist and exert effort in the absence of obvious rewards, is simply the result of an intermittent or variable reinforcement schedule. Witness the pigeon pecking for bugs under the leaves on the ground in the forest. The pigeon will continue with this activity for long periods of time without finding a bug. Is this intrinsic motivation? Is the pigeon pecking for the pure joy of pecking? A behaviorist interpretation is that they are under a variable ratio reinforcement schedule. Similarly, people at a slot machine in Las Vegas keep pulling the lever in the absence of reward. It is the intermittent reinforcement schedule that is responsible for the high levels of vigor and persistence, not some intrinsic satisfaction of pulling the lever.

This chapter takes the position that in attempting to understand human motivation in the workplace, intrinsic and extrinsic motivation constitute two separate processes and are more than the reinforcement schedule at work in the situation. Maslow's theory has already been discussed, so focus of attention is on three other theories in which the distinction between intrinsic and extrinsic motivation is a central focus: Herzberg's two-factor theory, Hackman and Oldham's job characteristics theory, and Deci's cognitive evaluation theory (also called self-determination theory).

### Herzberg's two-factor theory

Herzberg, Mausner, and Snyderman (1959) conducted an empirical study of what people reported as sources of motivation in their jobs, and the results led them to the two-factor theory. The researchers interviewed over 200 engineers and accountants about their jobs; these workers were asked to recall job-related incidents that were associated with especially good and bad feelings. These data indicated that good feelings were associated with such job-related factors as achievement, responsibility, advancement, recognition, and work (task) activities. Bad feelings were frequently associated with working (environmental) conditions, supervision, salary, job security, organizational rules and practices, and interpersonal relationships at work.

On the basis of these data, Herzberg proposed the motivator-hygiene theory, or as it is more commonly known, two-factor theory. Two-factor theory assumes that everyone has two types of needs, hygiene needs and motivator needs. Hygiene needs include factors extrinsic to the work itself. These include providing status, security, good relationships with supervisors, subordinates, and supervisors, salary, work conditions, and the company policy and administration. Motivator needs include intrinsic factors, such as opportunities for advancement, increased responsibility, personal growth, achievement, recognition of successes, the challenging nature of the work itself, and opportunities and achievement. The key points in Herzberg's two-factor or motivator-hygiene theory were:

1. Satisfaction and motivation are synonymous. Satisfaction leads to motivation and motivation leads to satisfaction.
2. Dissatisfaction differs from satisfaction and is not simply the lower end of the scale. Dissatisfaction is an entirely different dimension than satisfaction and the factors contributing to each differ.
3. Managers need to reduce dissatisfaction by providing hygiene factors (i.e., good pay, security, good relationships, good work conditions, good policies and administration).
4. Managers need to motivate workers by providing motivator factors (i.e., opportunities for growth, increased responsibility, recognition of successes, challenging work, opportunities for advancement).

To hear Herzberg himself describe his theory, check out this old, but interesting video at the link provided below. Note that Herzberg essentially equates motivation to intrinsic motivation. He labeled extrinsic rewards or incentives as "hygienes" and proposed that they lead to "movement" (or KITA, a "kick in the ass") not motivation. He labeled intrinsic rewards or incentives as "motivators" and proposed they lead to intrinsic motivation, which in Herzberg's view was the only genuine type of motivation. We will not use his terminology, but keep in mind his insights into intrinsic motivation.

<http://www.youtube.com/watch?v=o87s-2YtG4Y>

Herzberg's two-factor theory is really just an extension of the need theories that were discussed earlier in this module. According to Herzberg, hygiene needs operate according to a type of homeostatic model. When hygiene needs are not fulfilled, the worker is dissatisfied. When hygiene needs are fulfilled, the worker is not satisfied but only "not dissatisfied." The fulfillment of the hygiene needs produces a state of neutrality, not satisfaction. For example, if your garbage is not collected, you will undoubtedly become dissatisfied. However, the fact that your garbage is collected is unlikely to make you happy. Your attitude toward garbage collection is probably best described as a neutral state that is disrupted only by the absence of garbage collection.

When motivator needs are fulfilled, the worker is satisfied; when they are not fulfilled, the worker is not satisfied. According to Herzberg, the presence of hygiene factors will reduce dissatisfaction but will only bring the employees to a state of "not being dissatisfied." They are not satisfied or intrinsically motivated if their hygiene needs or met but will instead start expecting even more of the same. The point at which dissatisfaction is eliminated keeps escalating so that providing hygienes never leads to true satisfaction or intrinsic motivation. Similar to Maslow, Herzberg believed that it is only through providing "motivators" in the form of such things as responsibility and opportunities for growth that workers achieve a true state of satisfaction and intrinsic motivation.

Although Herzberg's two-factor theory has generated much enthusiasm over the years, empirical research has not supported the major tenets of the theory. For one, the research has shown that the motivator and hygiene factors are related to both satisfying and dissatisfying situations (Dunnette, Campbell, & Hakel, 1967; House & Wigdor, 1967).

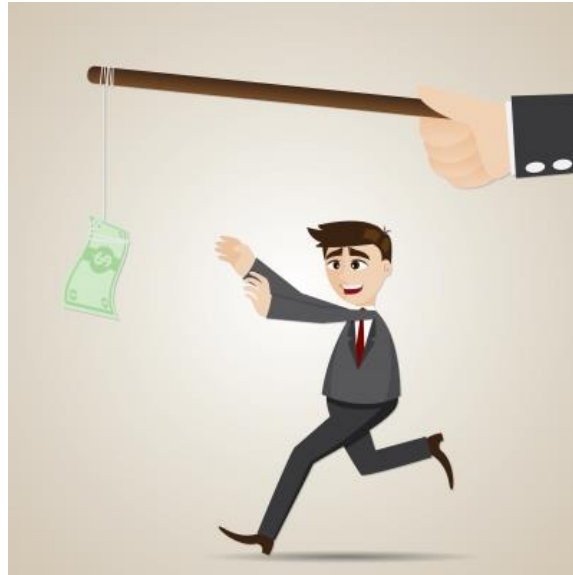
Also, critics have questioned the manner in which Herzberg, et al collected their data. Herzberg used a data collection procedure called critical incidents; that is, he asked workers to recall especially good and bad job-related incidents and then explain why they felt the way they did. Because people prefer to present themselves in a favorable light, they might attribute good incidents to themselves or their efforts (recognition, achievement) and bad incidents to other factors in the work environment (supervision, working conditions). Some of the critics of Herzberg's theory have attributed the original findings of Herzberg, Mausner, and Snyderman (1959) to this type of defensive bias (Ondrack, 1974).

Given the lack of empirical support, one may question whether two-factor theory has had any real impact on organizational research and practice. Two-factor theory's lasting value lies in the fact that it focused attention on the influence of motivators, such as achievement and responsibility, on worker attitudes. Prior to Herzberg's work, organizational interventions had focused entirely on hygiene factors, for example, pay and the work environment. Therefore, like the Hawthorne studies that preceded it, two-factor theory made a lasting contribution despite its apparent flaws.

### Self-determination theory

A second theoretical perspective on intrinsic motivation that has received more empirical support than two-factor theory is Deci's self-determination theory (also known as cognitive evaluation theory). Deci proposed that not only do extrinsic rewards fail to induce intrinsic motivation but they can actually hurt intrinsic motivation.

Does money destroy intrinsic motivation? Much of the attention in the original research on Deci's theory focused on the effects of one particular extrinsic reward.... money. The attempts to link pay to performance are too numerous to enumerate and the failures of these attempts are almost as numerous. There are many reasons that pay-for-performance plans fail, not the least of which are the failures to properly measure performance and to reward cooperation. Although linking pay to performance seems to make a lot of sense from the managerial perspective, it is a risky approach to motivation. One potential reason for the failure of pay-for-performance schemes is that it may destroy the intrinsic motivation to perform the task. Suppose a supervisor lavished an employee with praise, saying that his work was excellent and that he was a model employee. He would probably start to envision the new stereo and clothes he would purchase with your hard-earned raise. Imagine his surprise when the boss tells him that because he was such an excellent worker, he was not being recommended for a raise. In response to his bewildered "Why?" he is told that money destroys drive and incentive, so his only reward is praise.



Does this little scenario seem ridiculous? Probably, but some motivation theorists would agree with the supervisor. According to Deci (1975) and his colleagues, the conditions promoting intrinsic motivation are at odds with the current practice of rewarding motivated behavior with money or similar extrinsic rewards. Drawing on the work of deCharms (1968), Deci hypothesized that people have a need to feel that they are competent and control their own lives. He assumed that they are intrinsically or internally motivated to perform a task if it fulfills these two needs; under such conditions, people will perform a task solely for the personal pleasure that the task itself provides. If, however, people are offered external inducements, such as money, to perform an intrinsically motivating task, they will perceive that external forces guide their behavior and consequently lose their sense of competence and control.

Research testing self-determination theory. In a test of self-determination theory, Deci (1971; 1972) conducted a series of laboratory experiments in which he manipulated intrinsic motivation by giving subjects puzzles to solve; the tasks he gave were challenging and inherently interesting. Participants were assigned to one of three conditions. Some were paid hourly, others contingently (according to the number of puzzles they completed), and still others were not paid at all. During the experimental session the participants were allowed to take a break in which they were given free time to use as they wished. Those who were originally paid per puzzle completed spent less time working on the puzzles in their free time than the unpaid participants. Deci concluded that, when people perceive that they are extrinsically motivated to perform a task through external sources such as money, their intrinsic motivation to perform the task decreases.

The attempts to replicate Deci's counterintuitive results have led to mixed results. Although some studies (Calder & Staw, 1975; Hamner & Foster, 1975) failed to clearly replicate Deci's results, others (Pritchard, Campbell, & Campbell, 1977) supported his results. Although subsequent research has not technically refuted Deci's original results,

the generalizability of his results to work settings is suspect. First, the differences between reward conditions in the time spent working on the puzzles were statistically significant, the practical significance of whether a person works a few minutes more on an intrinsically motivating task is possibly trivial. A related issue is the short time interval (the experimental session) subjects spent working on the puzzles. Although such tasks are intrinsically interesting for short periods of time, they are not so appealing after hours or days. Workers in organizations often must perform the same tasks daily for years. Third, Deci's findings seem to apply to those situations in which people do not expect payment, such as a laboratory experiment, not to situations in which they expect payment for what they do, such as the typical job (Staw, 1977). A fourth issue is that in most work environments, management tries to motivate people who are unmotivated or extrinsically motivated. Deci's theory primarily concerns the effects of extrinsic factors on the performance of participants who were already intrinsically motivated.

For all these reasons, the notion that we should not pay people contingent on their performance because it will destroy their intrinsic motivation seems to have limited generalizability to realistic job situations. Nevertheless, it remains alive and well in discussions of using money to motivate students. Check out the following video that describes a controversial proposal to pay students for grades. There is a considerable amount of research in school settings to suggest that such schemes may actually have a detrimental effect on student creativity.

<http://www.youtube.com/watch?v=tkVcO8M4QVc>

Modifications in the theory. Deci's self-determination theory has evolved over the years so that the focus is no longer solely on the effects of money but any reward that lowers an employee's sense of competence and control. On the basis of the theory, one could argue that if properly administered, a monetary reward system could even boost intrinsic motivation if the rewards raise the employee's sense of competence and control. The theory would also argue that providing positive reinforcement contingent on successful accomplishment of work are detrimental if it lowers the sense of control and competence. If the supervisor reduces them to the role of a trained dog jumping for a biscuit, the reward may negatively impact intrinsic motivation (i.e., their willingness to work without the promise of rewards). Rewards should increase rather than lower the sense of competence and control. This is very similar to what Herzberg said in the video that appeared earlier about "jumping for jelly beans." Although he framed his arguments within his two-factor theory, Herzberg observed that this type of reward system could diminish employee sense of control and dignity.

### Job enrichment as a strategy for increasing intrinsic motivation

An important issue in discussions of how to increase intrinsic motivation is how to enrich jobs so that they are inherently interesting and challenging. Herzberg and his colleagues were among the first to bring attention to job enrichment as a means of increasing job enrichment. Check out his lecture in a smoked filled room in the 60s.

<http://www.youtube.com/watch?v=gtYi4102OvU>

Herzberg's discussions of job enrichment were framed within his two-factor theory, which has not received much empirical support in subsequent research. An alternative theory, which has received much more empirical support, is the Job Characteristics Theory of Hackman and Oldham (1976). This approach has already been discussed as an example of a theory using individual differences in needs as a moderator of the effects of job characteristics on motivation.

Job characteristics theory. This perspective has a straightforward assumption: Well-designed work tasks fulfill the growth needs of workers (see Alderfer earlier in the module), and the fulfillment of those needs motivates them. What Hackman and Oldham called motivational potential is essentially intrinsic motivation. Motivational potential is a high degree of vigor and persistence on the part of the employee as that employee pursues the fulfillment of higher needs such as growth and autonomy. Hackman and Oldham's Job Characteristics Theory (1976) proposes that five fundamental task or job dimensions trigger motivational potential. The core job characteristics that can lead to high levels of intrinsic motivation are skill variety, task significance, task identity, autonomy, and task feedback.

1. Skill variety refers to the degree to which one's job requires the use of several skills. For example, a manager's job is high in skill variety because it requires many skills, such as supervision, planning, delegating, negotiation, and decision-making.
2. Task significance indicates the importance of the work task to other people. A nurse's work tasks, for example, are high on task significance because of their relevance to other people's welfare.
3. The third dimension, task identity, refers to those characteristics of work tasks that enable a worker to identify with a complete product or service. For example, a factory worker who performs only one component of the manufacturing process may fail to see the relevance of his or her individual job to the manufacture of the completed product, such as a car.
4. A job is high in autonomy if workers have freedom or discretion in deciding how to perform the job. The typical manager's job is often fairly high and the factory worker's job fairly low on autonomy.
5. Task feedback refers to whether the performance of job tasks gives the worker feedback about his or her work effectiveness. A teacher, for example, may not get much task feedback in the process of teaching her students. She only becomes aware that the students did not learn the material after grading their exams.

Hackman and Oldham hypothesized that each of the core job dimensions would contribute to the development of three critical psychological states. Specifically, they hypothesized that task variety, task identity, and task significance would lead to the



experienced meaningfulness of work; task autonomy would contribute to the development of the experienced responsibility for outcomes of work; and task feedback would lead to the knowledge of the results of work. The hypothesis is that these psychological states are associated with positive work and personal outcomes, such as high intrinsic work motivation, performance, satisfaction with work, and low absenteeism and turnover. In addition, they proposed that growth need strength moderates the effects of the core job dimensions on the outcomes. Specifically, Hackman and Oldham proposed that the positive effects of the five job characteristics on the three critical psychological states and the effects of the three psychological states on outcomes are most pronounced for workers with strong growth needs. The relationships in the job characteristics model are presented in figure 4.17.

Hackman and Oldham further proposed that the motivating potential of any job is not simply an additive function of the five job dimensions, but rather a multiplicative function:

MPS (motivating potential score) = ((skill variety + task identity + task significance)/3) X autonomy X feedback

A job with a high MPS score should have more motivating potential than a job with a lower score. From inspecting the formula, you can see that autonomy and feedback are the most important factors in the MPS. If either is zero, the MPS is zero. However, as long as the job has skill variety, task identity, or task significance the MPS is still reasonably high as long as autonomy or feedback is high. The Job Diagnostic Survey (JDS) was developed to measure the task dimensions, psychological states, and outcomes set forth in the Job Characteristics Theory (Hackman & Oldham, 1975). The JDS is a rather unusual instrument because the items for each component are typically scattered across different sections of the survey, and more than one item format is used to measure each component. The original purpose of this variability in item location and format was to reduce response bias by forcing the respondents to carefully read each item. Some example items from the JDS are presented in table 4.13.

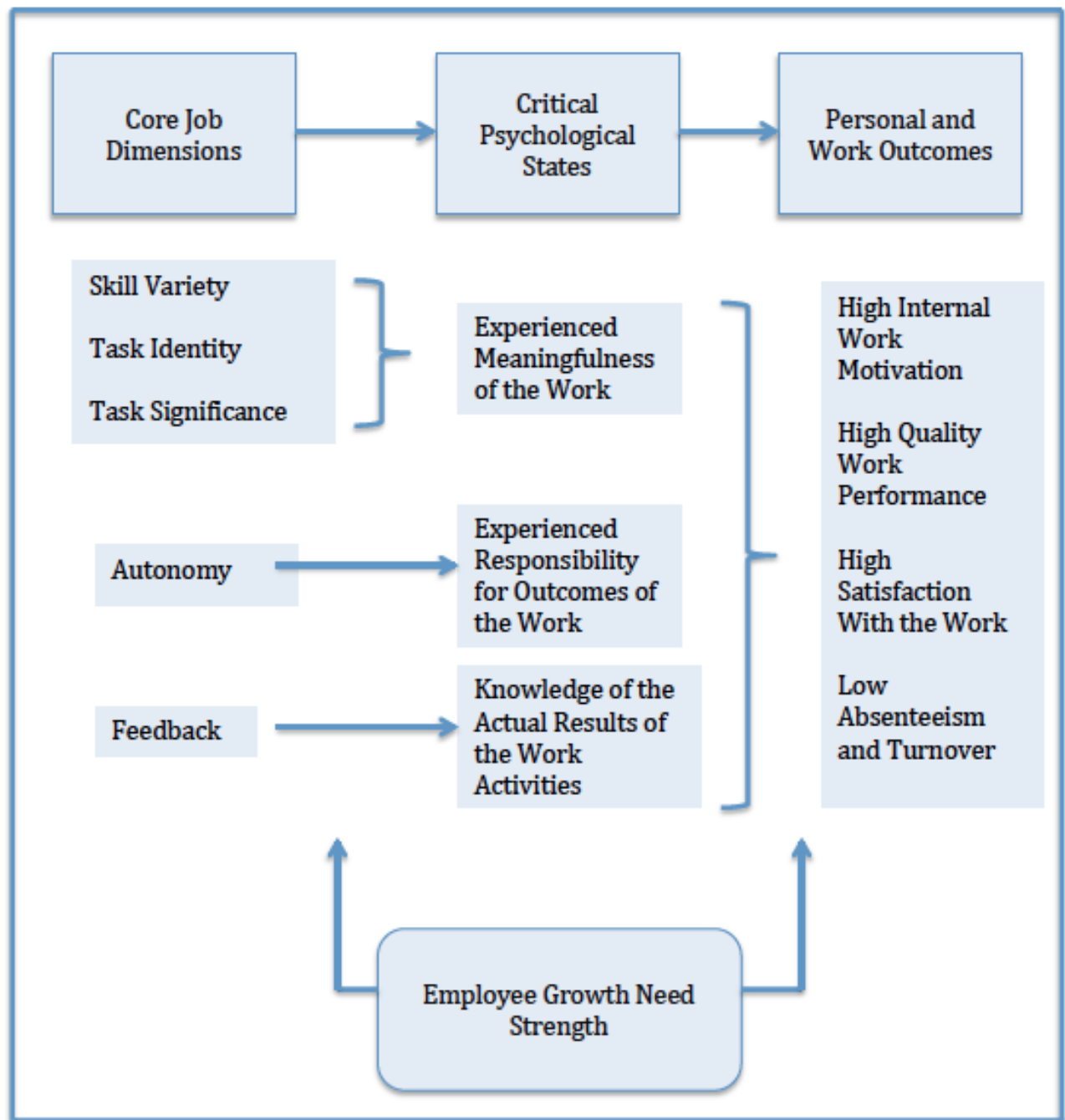


Figure 4.17: Hackman and Oldham's Job Characteristics Model of Work Motivation

**EXAMPLES OF JOB DIAGNOSTIC SURVEY (JDS) ITEMS**

**DIRECTIONS:**

Listed below are a number of statements that could be used to describe your job. You are to indicate whether each statement is an accurate or inaccurate description of your job. Write a number in the blank beside each statement, based on the following scale.

How accurate is the statement in describing your job?						
1	2	3	4	5	6	7
Very Inaccurate	Mostly Inaccurate	Slightly Inaccurate	Uncertain	Slightly Accurate	Mostly Accurate	Very Accurate

*Skill Variety*

\_\_\_\_\_ The job requires me to use a number of complex or high level skills.

*Feedback for the Job Itself*

\_\_\_\_\_ Just doing the work required by the job provides many chances for me to figure out how well I am doing.

*Task Significance*

\_\_\_\_\_ This job is one where a lot of people can be affected by how well the work gets done.

*Task Identity*

\_\_\_\_\_ The job provides me the chance to completely finish the work I begin.

*Autonomy*

\_\_\_\_\_ The job gives me considerable opportunity for independence and freedom in how I do the work.

Table 4.13: Examples of items from the Job Diagnostic Survey (JDS)

Research. A meta-analysis incorporating 28 studies that tested the job characteristics model supported the predictions of the model (Loher, Noe, Moeller, & Fitzgerald, 1985). The researchers found that the average correlation between each core job characteristic and job satisfaction was positive and ranged from .32 (task identity) to autonomy (.46). In a test of the moderating effects of growth need strength, the correlation between a combination of the core job characteristics and satisfaction was .68 for workers who are high in growth need strength and .38 for workers who are low in growth need strength. These correlations are consistent with the model because the relation between job characteristics and satisfaction is higher for workers high in growth need strength. Two other meta-analyses, both employing larger samples of studies (Fried & Ferris, 1987; Spector, 1985) also provided support for the predictions of the job characteristic model for the relationships of the core job characteristics with satisfaction, motivation, performance, and the mediating psychological states as well as support for the moderating effects of growth need strength.

For a couple of short lectures on the Job Characteristics Theory check out:

[http://www.youtube.com/watch?v=uEJzzVwAM3I&list=PLoJHkGmgd2\\_ni60c9NoqImrDSyOpi8apF](http://www.youtube.com/watch?v=uEJzzVwAM3I&list=PLoJHkGmgd2_ni60c9NoqImrDSyOpi8apF)

[http://www.youtube.com/watch?v=bsA5mowDDR&list=PLoJHkGmgd2\\_ni60c9NoqImrDSyOpi8apF](http://www.youtube.com/watch?v=bsA5mowDDR&list=PLoJHkGmgd2_ni60c9NoqImrDSyOpi8apF)

Points to ponder:

1. What are the arguments for and against distinguishing intrinsic from extrinsic motivation?
2. Is it always important that workers are intrinsically motivated as opposed to extrinsically motivated? What are the situations in which ensuring intrinsically motivated workers is an important concern? What are the situations in which it may suffice to have only extrinsic motivation?
3. Based on self-determination theory, how could one use monetary rewards to increase intrinsic motivation?

### Integrative Approaches to Work Motivation

At this point, you are probably asking which theory of work motivation is the best. Which theory should managers use as a guide to improving the motivation of their workers? The answer to this question is that all of them deserve consideration as useful guides to practical action. Each theory addresses a crucial question in the attempt to increase the vigor and persistence with which employees pursue organizational goals. In addition, theoretical frameworks exist that can provide an integration some of the theories discussed in this chapter. This chapter closes by considering several attempts to integrate the various motivational perspectives that appear promising.

The motivational theories are reconcilable

Integration of the various motivation models is not possible if they represent competing frameworks and generate conflicting hypotheses. Fortunately, many of the predictions are not really inconsistent. Take, for example, VIE theory and goal-setting theory. At first glance they seem to contradict one another but on closer examination the differences between the two are reconcilable. VIE theory would seem to assume that difficult goals produce little effort because expectancy (the effort-performance association) is low. On the other hand, goal-setting theory would seem to predict that difficult goals lead to higher performance.

Matsui, Okada, and Mizuguchi (1981) investigated these competing assumptions (see figure 4.18). They assumed that difficult goals are associated with a lower expectancy of successful performance. However, they also assumed that difficult goals would have a higher positive valence because people value success on difficult tasks.

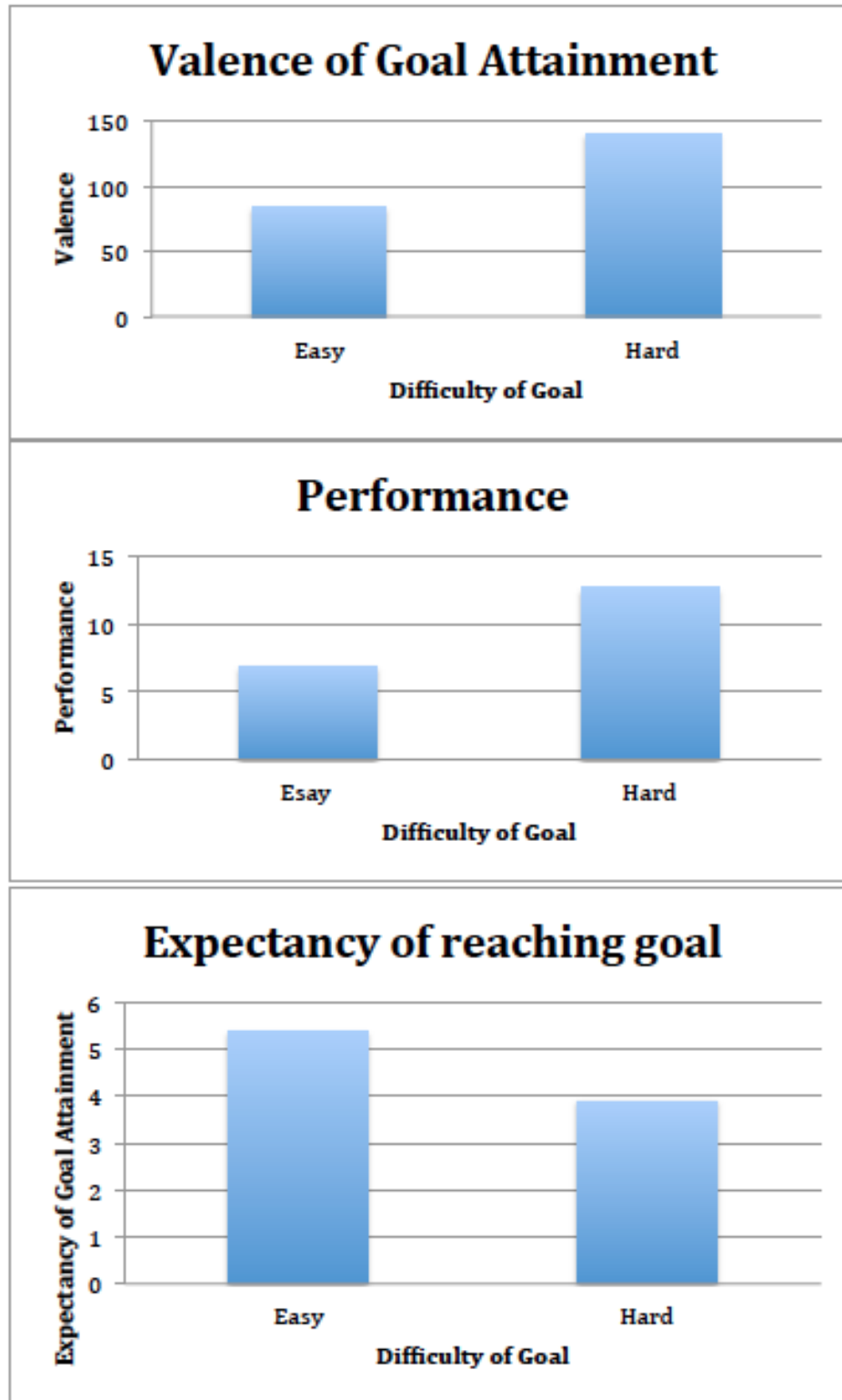


Figure 4.18: Means for Performance, Valence, and Expectancy in Easy- and Hard-Goal Conditions.

Before goal-setting theory can predict motivated behavior, the valence of the goal must overcome the low expectancy of performance. The researchers had student subjects perform a clerical accuracy task (number comparison) in either an easy- or difficult-goal condition. They found a difficult-goal effect: subjects in the difficult-goal condition outperformed subjects in the easy-goal condition. Subjects in the difficult-goal condition also had a lower expectancy of success than those in the easy-goal condition. In addition, participants evaluated the valence of the outcomes from goal attainment (such as a sense of achievement, clerical ability, and persistence) more positively when they were given difficult goals than when they were given easy goals. These results confirmed the researchers' predictions that the higher valence of difficult goals, if they are accepted, overcomes the low expectancy of success. In this experiment participants were presented with one and only one goal that we can assume they accepted.

Mento, Cartledge, and Locke (1980) suggest a two-stage process. Expectancies and valences influence whether a goal is accepted. When participants are presented with multiple goals to choose from, VIE theory will more accurately predict the choice of the goal, i.e., they will choose the goal with the highest expectancy X valence. However, after a goal is chosen and accepted, goal-setting propositions govern performance in pursuit of that goal. Once accepted, increasing difficulty of the goal activates more effort despite the lower expectancy of success. More recently, Kernan and Lord (1990) found that valences and expectancies functioned differently in single-versus multiple-goal situations. Using students who performed either a single clerical task or multiple clerical tasks, they found that VIE variables were more influential in the multiple task (goal) condition. The researchers reasoned that the cognitive VIE variables were more useful when subjects had to choose which task to focus on (multiple goal), not how to perform a single task goal.

Another apparent conflict that is reconcilable is between nAch theory and goal setting theory. If you recall, the high need for achievement person works harder on moderately difficult tasks than easy or impossible tasks. Again, this is compatible with VIE theory and goal theory if one assumes that the effects occur after the high need achievement person accepts and commits to a goal. Once acceptance and commitment are in place, the high need for achievement person works harder the more difficult the goal and the more specific the feedback from the goal up to the point that the goal is seen as impossible. At that point the goal is rejected.

### Integrating with VIE theory

Probably the best known of these refinements is Porter and Lawler's (1968) proposed integration that is depicted in figure 4.19. In this integration, equity, intrinsic vs. extrinsic motivation, and needs are seen as influencing motivation via their impact on components of VIE theory. The model assumes that, for effort to translate into a desired level of performance, the person must have the ability to perform well (abilities and traits), and he

must understand demands of his job (role clarity). The model acknowledges that people work for both extrinsic rewards, such as money and promotions, and intrinsic rewards, such as pride in one's work and a sense of accomplishment. The model also assumes that the level of performance a person attains will affect the level of rewards he perceives as equitable. Specifically, if a person expends a great amount of effort that culminates in high performance levels, he will perceive that he deserves a substantial reward.

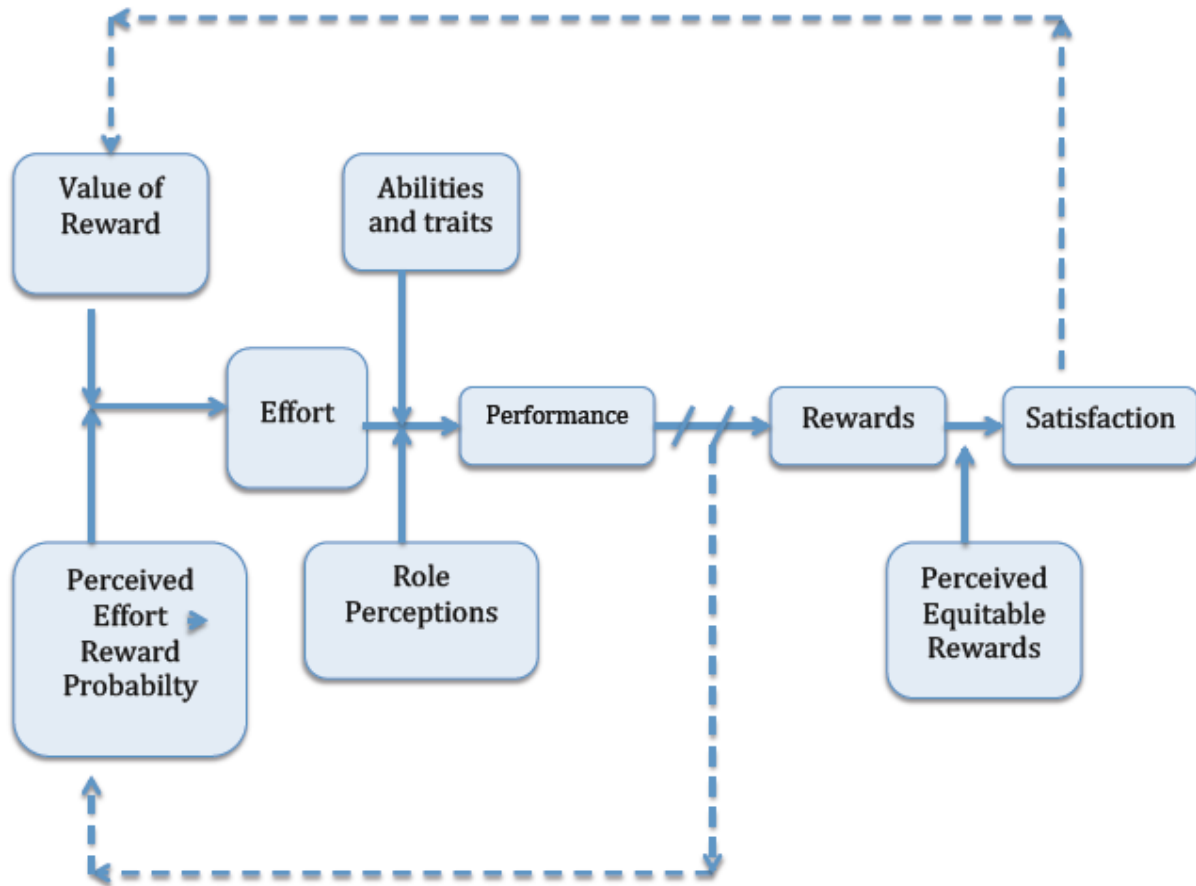


Figure 4.19: The Porter-Lawler (1968) Refinement of the VIE Model.

### Work motivation as an unfolding process

One way to integrate the various approaches is to conceive of motivation as a process that unfolds over time. The beginning point of the process is defined by the viscerogenic and the psychogenic needs of the individual. Needs are essentially categories of goals. They reflect stable traits of people and also vary in their importance to some extent with the satisfaction and dissatisfaction of the needs. The relative importance of needs determines what goals are considered. Goals that relate to unimportant needs are not given much consideration while the focus of the individual is on choosing among the goals related to more important needs. Mento, Cartledge and Locke (1980) suggest a two-stage process that received support in the research of Kernan and Lord (1990). Expectancies and

valences influence which of several goals is accepted. However, after a goal is accepted, goal-setting propositions govern performance. Thus, the specificity and difficulty of the goal and the commitment to the goal shape one's focus of attention, task strategies, vigor, and persistence. Satisfaction with achieving the goals is influenced by several factors. Satisfaction with performance increases to the extent that the outcomes achieved are contingent on one's goal accomplishments and lead to pleasure and the avoidance of pain. Satisfaction also increases with the fairness of outcomes and the procedures by which the outcomes are administered.

Satisfaction with goal accomplishment in turn affects one's commitment to future attempts to pursue the chosen goals. Over time as the result of continuing cycles of goal-oriented activity and the administration of outcomes for this outcome, the person becomes intrinsically motivated and values the activity for the sake of the activity rather than any external consequences. This seems most likely when the person develops a sense of competence and self-determination and feels that he or she is growing as a person.

Consider an example from everyday life. Assume that has had her morning coffee, she reviews several alternative goals that she can pursue during the day. One is mowing the lawn. This task has a high probability of success (let's say an expectancy of .9) and a low valence (let's say a 3). Another goal is buying groceries and this has an expectancy of .9 and a high valence of 8. Consistent with VIE theory she chooses to accept the goal of buying groceries ( $.9 \times 3 = 2.7$  vs.  $.9 \times 8 = 7.2$ ). Once she has chosen the goal of buying groceries, the characteristics of the goal kick in and become the primary motivating force. To the extent that she set a specific, difficult grocery-buying goal (e.g., I'll get these specific items to stock my pantry through the next two weeks), accepts the goal, and is committed to accomplishing the goal, she demonstrates vigor and persistence in the pursuit of the goal. Needs are essentially categories of goals and enter into the process at the very beginning by dictating the valence of goal accomplishment. Her low valence for mowing the lawn might reflect the low importance she places on needs for esteem (what does she care that neighbors think poorly of her because her lawn?). Her high valence for buying groceries might reflect the high importance she places on social needs (She needs to buy groceries so she can entertain her friends). The relative importance of needs can fluctuate with circumstances, e.g., her social needs are relatively unimportant one day but highly important another. Fairness plays a role, especially if she has a partner who is expected to share in the chores. Some theorists suggest that the fairness of the outcomes and procedures primarily influences how satisfied she is with the outcomes of her actions. Satisfaction, in turn, influences the commitment to the goal and thereby affects the vigor and persistence with which she pursues the goals in the future. For example, even though she exerts vigor and persistence in the pursuit of her grocery buying goal, if she feels that her partner's job is to shop and that he or she has not been fair in sharing these duties, she is not as committed to the task in the future. Finally, there is the question of how intrinsically motivated she is to pursue the grocery buying goal. To the extent that she feels that buying groceries is a task over which she has control, that she is competent in performing the task, that the task is meaningful, and that the task allows her to grow as a person, the task may become valued for the actions involved rather than any extrinsic



outcome. On the other, to the extent that she feels that buying the groceries is something she must do to avoid pain (e.g., hunger, disapproval of friends, arguments with my partner) or to obtain extrinsic rewards (e.g., satisfaction of hunger, approval of friends, peace with my partner), she may not perform the task with the same vigor or persistence. Once the threat of pain or the promise of reward is absent she might just order a pizza and skip buying groceries altogether.

### Control theory as an integrative framework

The concept of the negative feedback loop is at the core of control theories of human behavior. Cybernetic theorists originally used the negative feedback loop to explain how closed mechanical systems self-regulate (Wiener, 1948). The basic components of control theory are the input from the environment, a sensor which detects the input, a standard against which the input is compared, a comparator which performs the comparison, a negative feedback loop consisting of information on the extent of deviation of the input from the standard, and the effector or entity that acts on the negative feedback to reduce the discrepancy. The classic example is a thermostat used to regulate temperature in a room. The thermostat contains a standard in the form of a temperature setting. The temperature is monitored and the current temperature of the room is an input to the system. The input is compared to the set temperature that is the standard. When the temperature drops below the standard, a signal is sent to the air conditioning unit (the effector) and the heat is turned on. When the temperature rises above the set temperature, the signal to the air conditioning unit triggers cooling. Thus, the discrepancy between room temperature and the set temperature serving as the standard is reduced. Basically a negative feedback loop acts to maintain homeostasis and stability in the system. Control theory also posits that in most complex systems there is a hierarchy of standards.

In applying control theory to work motivation, theorists view the worker as a closed system who acts to reduce discrepancies between standards and inputs (e.g., Klein, 1989). Needs, goals, values, norms for fairness (e.g., need, equity, equality), and ideal self-conceptions are standards. There are numerous potential standards that could govern their behavior, and the ones that become standards depend on their salience and importance to the employee. Take, for example, a person who sets a goal to produce 15 units each week and actually produces 13. The discrepancy between the goal and the number produced constitutes a negative feedback loop and sets into motion actions to reduce the discrepancy. Consequently, the person exhibits vigor, persistence, and choices that have the effect of increasing the number of widgets and reducing the discrepancy from the standard. What about an employee who produces more than 15 units? In a theory of work motivation that adheres strictly to control theory this would also constitute a discrepancy and would trigger a negative feedback loop. The employee would slack off to bring performance back in line with the goal.

Control theory applications to human behavior usually posit a hierarchy of standards. At the highest and most abstract level are the general beliefs, ideals, and values such as incorporated in the ideal self-concept. Each of the lower, subordinate standards in the hierarchy is concerned with an aspect of the higher standard. Take, for example, a person

who holds an ideal self-concept as a leader. At the next level there are standards that are necessary to becoming a leader such as persuasiveness, vision, and organization. Each of these standards have subordinate standards governing more specific enactments of the higher level standard. Being persuasive means giving an effective presentation at next week's executive committee meeting that changes the opinions of others on the committee, and successfully getting the employees who reports to you to buy into your decisions. Each of these standards govern even more specific actions such as putting the powerpoint together for the presentation, writing a talk, and setting the agenda for the meeting. Each higher level standard specifies more concrete goals at the next lower level. Not all standards are salient at any one time. The level in the hierarchy that is salient determines which standard is most influential.

There are criticisms of using control theory as an integrative framework to explain work motivation. Locke (1994) complains that "The present author has never understood the appeal of control theory...Perhaps the machine metaphor gives it a "scientific" aura, but the aura, upon closer examination, seems largely illusory" (p. 18). A major criticism is that it is basically a homeostatic model that assumes that humans seek to reduce discrepancies. Humans often seek to increase discrepancies despite the tensions associated with these discrepancies. Examples are the high need achieving person who seeks challenge and risk and the self-actualizing person who is not content with the status quo but seeks growth experiences. Another criticism is that control theorists inevitably must incorporate traditional motivational constructs to adequately explain work motivation. People do not simply sense discrepancies and then act to reduce the discrepancies, they perceive events, attribute causes to these events, experience a wide range of emotions, and assess expectancies and valences of outcomes. Klein (1989) incorporates all of these into his control model of work motivation. But one is left wondering what is new. Control theories of work motivation fail in providing integrative frameworks and more typically present a patchwork of ideas borrowed from other motivational theories. Advocates of a control theory approach have attempted to counter many of these criticisms. They argue that behavior that appears to be aimed at increasing discrepancies can be explained by incorporating a hierarchy of standards. Acts to move beyond a standard may reflect the salience of higher level, more abstract standards. As such, they may represent attempts to reduce discrepancies from a higher level, more abstract standard in the hierarchy of standards. Other proponents have posed strong arguments for the value of control theory as a useful meta-theory that can pull together a variety of motivational theories. The author has always struggled with the use of control theory. I am skeptical that it advances our understanding of work motivation, but future research may prove otherwise.

#### Points to ponder:

1. It is clear that the motivational theories do not necessarily conflict and that there is room for reconciliation among them. What are these points of reconciliation?
2. Describe how VIE theory could be used as a framework for integrating the various approaches.

3. Describe the unfolding process approach to integrating the various work motivation theories.
4. What is the control theory approach to integrating work motivation theories? What are the criticisms and potential advantages of this approach?

## Conclusions

The chapter began with examples of how motivation is frequently used to explain the achievements (or lack thereof) of individuals, organizations, and entire countries. Motivation is often seen as a trait that inherent in personality and determines whether an individual is productive in work activities. As seen in the subsequent discussion, motivation is more complex than these commonsense notions. Contrary to everyday use of the term, no one lacks motivation. Everyone is motivated to do something, even though it is not always what the organization would prefer. Motivation is the choice that employees make among tasks and goals, and they may choose to pursue organizational goals or other goals that conflict with organizational interests. Motivation is also the vigor and persistence with which they work to accomplish a goal. Indeed, there are traits involved. For instance, a high need achievement person is more motivated by challenging situations than a low need achievement person, whereas a high need affiliation person is more likely to pursue goals with vigor and persistence when they are instrumental for achieving close relations with others. In large part motivation is a state consisting of the cognitive, behavioral, and emotional processes that mediate work situations and responses to these situations.

A common distinction when talking about motivation theories is between content and process theories. Need theories are considered content theories of motivation in that they focus on what it is that motivates people. On the other hand, the other theories we have discussed are process theories that have attempted to explain how, for example, needs and rewards are translated into motivated behavior. One pervading theme across all process theories is an emphasis on purposeful, conscious thought, typically in the form of specific types of cognitive processes. The need theories discussed earlier tend to focus only on what motivates workers and delve to a lesser extent into the processes by which motivation occurs. Each of the motivation theories possesses certain weaknesses, but each theory does an admirable job of describing motivation under certain conditions for some people.

When attempting to understand why a person is motivated to work with vigor and persistence on a task, the key questions to pose are

- (1) What are their goals?
- (2) What are the consequences of the individual's actions?
- (3) What do they expect to occur from their actions?
- (4) What do they need and value?
- (5) Do they perceive the work situation as fair and just?
- (6) Does the work situation engage worker self-concepts and self-evaluations?
- (7) Are they intrinsically motivated to pursue task activities and goals?

The psychological research on work motivation tends to cluster around theories pertinent to each of these questions and at first glance appears rather disconnected. However, there are frameworks that have proven useful in integrating the various approaches including expectancy/valence theory, the unfolding model, and control theory. Although the statements of some of the theoretical positions may appear at first glance to contradict other theoretical positions, a closer examination reveals that they are reconcilable. Rather than testing the theoretical predictions of any one theory or pitting competing theories to determine which one is “right,” integrative approaches view the various theories as pieces of the motivation puzzle and recognize that all are needed to gain a complete picture. Moreover, all of these theories are valuable in suggesting practical interventions for creating a work situation in which employees are fully engaged in the pursuit of organizational goals. Here are a few:

1. Carefully examine the jobs that people will perform and their motivational characteristics, e.g., using the JDS. Select employees whose needs fit these jobs. If the jobs are challenging and varied and the employees are allowed autonomy, a high need for achievement person is more productive than a person lower on this need.
2. Once hired, assess the needs that are most important to employees and provide rewards for goal accomplishment that fulfill these needs. Keep in mind that past frustration may have led employees to deemphasize growth needs and focus more on security and more basic needs.
3. Consider what can be done to get employees to place more importance on needs important to performing the work. If high need for achievement is important to successful performance, pep talks, motivational seminars, and motivational training may make sense. Changing the needs of employees is not easy, however, and may require a change in the culture of the organization.
4. Take action to make sure that employees have high self-efficacy expectations, i.e., the expectancy that if they try they can achieve task success. This may require a variety of interventions, including redesign of the work itself, instilling self-confidence and boosting self-esteem, training to improve competence, and removing barriers to successful performance.
5. Create a work environment in which employees see the pursuit of organizational goals as instrumental to fulfilling valued self-conceptions and increasing their self-esteem. The danger is that employees who see their performance of the job as crucial to their self-esteem may engage in self-serving responses such as defensiveness and distorted perceptions. At the same time that managers link the work environment to the self, they should ensure that employees possess crucial knowledge, skills, and abilities, receive constructive feedback on performance, and understand what is expected.
6. Make sure that employees perceive that successful performance is positively instrumental to achieving valued outcomes, i.e., outcomes that fulfill their important

needs. This is accomplished through creating actual instrumentalities and then communicating these instrumentalities. To the extent that these rewards are few and far between, the instrumentality is low. We need to make sure that employees perceive a high instrumentality of effort and persistence for achieving rewards, so we actually reward those who work hard. This is in contrast to reward programs where a very few people are selected and recognized for good performance. In addition to setting up a reward program where there are actual contingencies, we need to communicate the instrumentalities directly and make a show of people getting rewarded for their efforts.

7. Make sure that employees set specific, difficult goals for accomplishing the tasks they are performing. If the tasks are complex or not well learned, the specificity and difficulty of the goals need to start at a lower level and then escalate as the tasks are mastered. To the extent that the task is novel and is likely to remain complex and full of surprises, try your best goals are often superior to specific goals. It is possible in some cases to break a complex task into simpler subtasks. For each subtask we can then set difficult, specific goals.

8. If specific, difficult goals are assigned, we need to explain and justify why we made these assignments.

9. At the same time that goals are set that are specific and challenging, provide feedback on how well the employees are doing in working to achieve the goals. Specific, frequent feedback is recommended, but also consider the nature of the task. On complex, ambiguous tasks and when employees are still learning, more general and less frequent feedback may be more beneficial until the employees achieve some level of mastery.

10. In the administration of rewards, assigning of tasks and goals, and the general treatment of employees, employers should provide procedural fairness by making decisions on these matters consistent and free from bias, allowing employees to participate in the decisions or at least have voice, and providing a means of appealing decisions.

11. We should give careful attention to how employees are assessing what they are receiving in the way of benefits for their investments in their work relative to the benefits and investments received by others. One way is through maintaining internal equity in compensation through job analysis and evaluation (see the module on job analysis). Another approach is through making transparent how people are being rewarded. Transparency requires, however, that employers put in place a reward system that is actually fair.

12. We should make sure that people feel a sense of self-competence and self-determination and that extrinsic rewards such as money are not overemphasized to the neglect of other, more internal rewards, such as pride in a job well done or the joy of helping others. This is accomplished through a variety of interventions, including job enrichment, human relations oriented supervision, reward systems, performance appraisal and feedback, the training and development of employees, and employee participation.



## CHAPTER 5: ATTITUDES TOWARD WORK AND ORGANIZATIONS



## Introduction

Think about a current job or a job held in the past. Now describe the pros and cons of this job. In response to this request, most people can easily generate the things they like or dislike about their jobs. Consider these comments of employees of organizations chosen as the best places to work in 2016 by Glassdoor ([https://www.glassdoor.com/Best-Places-to-Work-LST\\_KQ0,19.htm](https://www.glassdoor.com/Best-Places-to-Work-LST_KQ0,19.htm)):

“The people that work here are some of the best I've met in my professional career. The culture is good. The founders are great people and I believe they have the best intentions for the company, the employees, and our community. There is a lot of opportunity to learn from different teams and possibly switch roles as departments grow and new team form.”

“Working at ... has been a great experience so far. When they say they take an active interest in you and what you want to do with your career, they mean it. From ongoing meetings with my manager to development opportunities offered free of charge, I feel like I have a lot at my disposal to be successful here. It's also a really fun place to work-- and not just because there are dogs around you. Everyone you pass in the hallways seems to be smiling and enjoying their jobs, which makes me think I could enjoy it here for years to come.”

“Leadership places a heavy emphasis on employee growth across all divisions, from tuition reimbursement to offering opportunities to take on challenges outside your core responsibilities. -Transparent culture from top to bottom. -Management actually listens to employees, and makes quick changes to structure if/when needed. -Flexible working hours. -People here are incredibly smart and passionate, genuinely fun to work..”

On the negative side consider some of the reviews posted on Glassdoor (<https://www.glassdoor.com/index.htm>)

“Overwhelming, too many hours, no days off. It's like an insane asylum or the twilight zone. So many old career carriers never wanting to retire and looking down on the CCA's. They don't care about children or families at all. I'm ready to quit, it isn't worth it! Life is too short to miserable and exhausted.”

“You cannot live on this job alone. The work is physical and demanding and can do some harm to your body. The manager plays favorites and some people get away with doing as little as possible. It is dirty and you are exposed to the elements in the winter. Very little chance for advancement and not enough hours to support existence. Peak Season can easily burn you out.”

“Most of the employees who are in a supervisory or managerial role are family and/or friends of other managers. There is a serious nepotism problem. The list goes on. I need to stop here. My best advice is DO NOT work here unless you want your work-life to be a living hell.”



These quotes reveal the attitudes of the employees toward their jobs and the organizations for whom they work. Psychologists define an attitude as a state of readiness to respond in a particular way in one's thoughts, feelings, and actions to an object in the environment. It is a predisposition or leaning formed on the basis of the information that one acquires through past experience with the object that is the target of the attitude. The object that is the focus of the discussion in this chapter is the work situation of employees, including the jobs they hold and the organization that employs them. The three components of a work-related attitude are illustrated in figure 5.1. A work-related attitude is reflected most obviously in the feelings expressed about the work (e.g., "...a living hell"). They are also expressed in the beliefs about the job (e.g., "The work is physical and demanding") and the behavioral inclinations of the respondent (e.g., "I'm ready to quit"). An employee holding a positive attitude is more likely to have positive feelings, beliefs, and behavioral inclinations than an employee with a negative attitude.

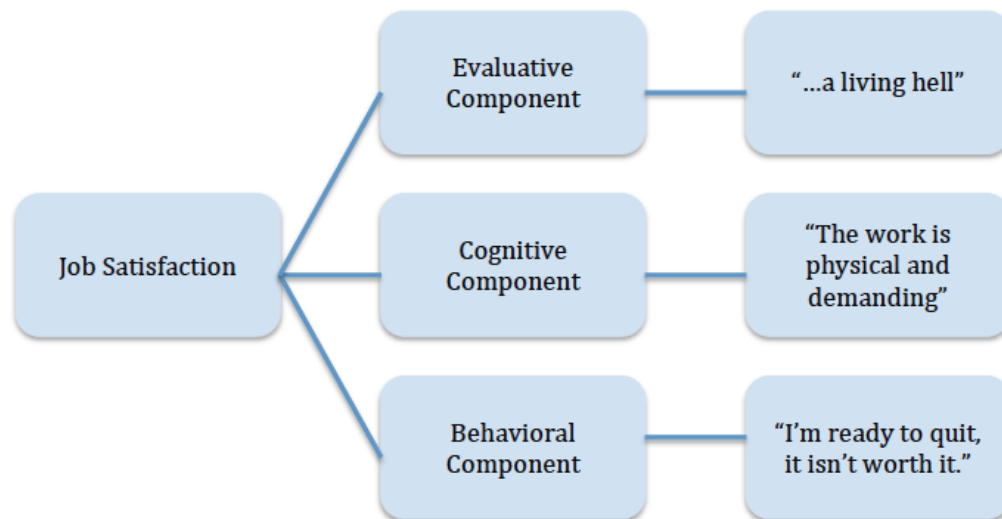


Figure 5.1: The Evaluative, Cognitive, and Behavioral Components of Job Satisfaction

Employees form work-related attitudes that are relatively stable and have important consequences. They influence not only the effectiveness with which employees perform their jobs, but also their health and well-being. This chapter reviews the research and theory for three work-related attitudes: job satisfaction, job involvement, and organizational commitment. In the discussion that follows, the review of the research is organized around two primary questions. How is the attitude measured, and what are the facets or components of the attitude? What are the correlates? What is the process by which the attitude forms? After considering whether satisfaction, involvement, and

commitment reflect the same of different constructs, the chapter concludes with a discussion of the practical implications.

## Job Satisfaction

Of the three attitudes examined in this chapter, psychologists have devoted the most attention to job satisfaction.

How is job satisfaction measured?

Although work-related attitudes consist of cognitive, behavioral, and evaluative components, the measurement of job satisfaction has focused more on the evaluative component than either the cognitive or behavioral components. Psychologists often say that whatever exists is measurable. As nebulous as attitudes may seem, they too are measurable using quantitative scales. Investigators have used two methods of measuring job satisfaction and other work-related attitudes, interviews and standardized self-report questionnaires.

Interviews. One approach is to interview the person and assess their satisfaction on the basis of their answers to questions. Take, for example, Grace Clements' description of her job, the making the molded inner lining of suitcases in a plant that manufactures luggage:

"All day long is the same thing over and over. That's about ten steps every forty seconds about 800 times a day.... I daydream while I'm working. Your mind gets so it automatically picks out the flaws [in the luggage].... You get to be automatic in what you're doing and your mind is doing something else.... I hope I don't work many more years. I'm tired. I'd like to stay home and keep house."

Contrast Grace's description of her job to that of Kay Stepkin, the director of a small nonprofit bakery that produces and sells bread:

"We try to have a compromise between doing things efficiently and doing things in a human way. Our bread has to taste the same way every day, but you don't have to be machines. On a good day it's beautiful to be here. We have a good time and work hard and we're laughing.... I think a person can work as hard as he's capable, not only for others but also for his own satisfaction.... I am doing exactly what I want to do.... Work is an essential part of being alive. Your work is your identity. It tells you who you are.... There's such a joy in doing work well."

Grace's feelings about her job are quite different from Kay's: Grace views each work day as a wearisome burden, whereas Kay anticipates each work day with eagerness and challenge. A reasonable inference from their comments is that Kay is much more satisfied with her job than Grace. (By the way, these quotes are taken from *Working: People talk about what they do all day and how they feel about what they do*, by Studs Terkel, 1974; check out the following link for another example Studs Terkel provides from his interviews about how a meter reader finds job satisfaction).

<http://www.youtube.com/watch?v=Oyl1BvHo9LM>

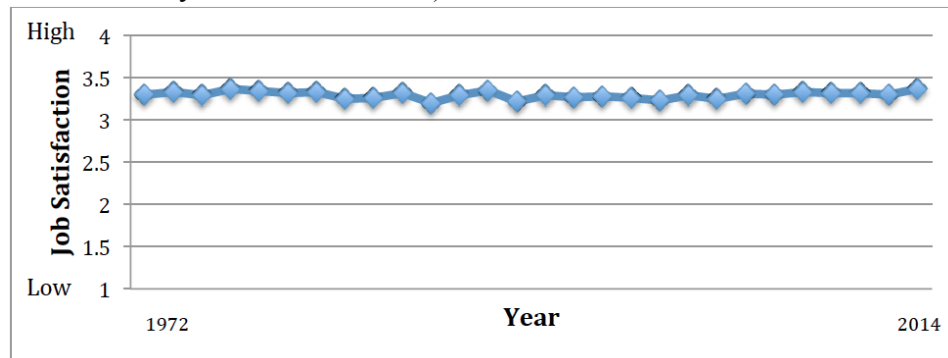
Also, check out this enactment of some of the interviews from Studs Terkel's book *Working* by a theatre group.

<http://www.youtube.com/watch?v=FMutvG2-Gv8>

Interviews such as those can produce a rich body of information and provide valuable insight into job satisfaction. They suffer, however, in that they fail to produce a standardized, objective, quantitative measure of work-related attitudes that researchers can track and examine over time. Moreover, interviews are costly, time consuming, and subject to numerous subjective biases. For that reason, psychologists typically have used self-report questionnaires in which employees are asked to indicate their level of satisfaction on numerical scales.

Single item questionnaire measures. Asking a general question about satisfaction and having participants respond on a numerical scale is more convenient and less expensive than interviews. It also allows the gathering of a large amount of data from large samples of workers and provides a standardized metric. Yet, having respondents answer one general question about satisfaction has its downsides. For one, single item measures do not provide much information about the sources of satisfaction or dissatisfaction. Also, responses to these measures appear biased in a positive direction.

In national polls respondents are asked simple questions such as “Are you satisfied with your job?” Summaries of the results over time show a remarkably high percent of respondents stating that they are satisfied with their jobs (see figure 5.2 for the results of General Social Survey from 1972 – 2014).



Source: General Social Survey (<https://gssdataexplorer.norc.umd.edu/variables/2838/vshow>) Respondents were asked “All in all, how satisfied would you say you are with your job?” Responses alternatives were Not at all (1), Not too satisfied (2), Somewhat satisfied (3), Very satisfied (4).

Figure 5.2: Job Satisfaction among U. S. Employees from 1972 to 2014

The findings stand in stark contrast to frequent accounts in the media that the workforce is deeply dissatisfied and that dissatisfaction is increasing (e.g., *Job Satisfaction Is at an All Time Low. We're Shocked. Shocked*, 2010; retrieved from <http://www.onlineinvestingai.com/blog/2010/01/12/job->

[satisfaction-is-at-an-all-time-low-were-shocked-shocked/](http://www.siop.org/tip/Apr13/08_Bowling.aspx)). Although there are ups and downs in reported satisfaction, it is not uncommon to find 80 – 90% of respondents stating in response to one-item questions that they are satisfied. In the General Social Survey, 87.9% indicated that they were very satisfied or somewhat satisfied with their jobs in 2002. In the same survey, 89.6% indicated that they were very satisfied or somewhat satisfied in 2014. Based on analyses of several surveys, researchers of one article concluded that mean job satisfaction scores were high and the small changes that did occur from year-to-year were random fluctuations rather than meaningful trends ([http://www.siop.org/tip/Apr13/08\\_Bowling.aspx](http://www.siop.org/tip/Apr13/08_Bowling.aspx)).

A similar satisfaction scale was used in surveys conducted across European countries. The results are summarized in Figure 5.3. There is a range in the mean job satisfaction found for countries with Denmark, Norway, Great Britain, and Switzerland at the top on satisfaction and Turkey and East European countries at the bottom. However, the results suggest that the majority of employees across all countries tend to report they are satisfied with their jobs.

Further evidence of the satisfaction levels of employees comes from a survey of the G8 and BRICS nations:

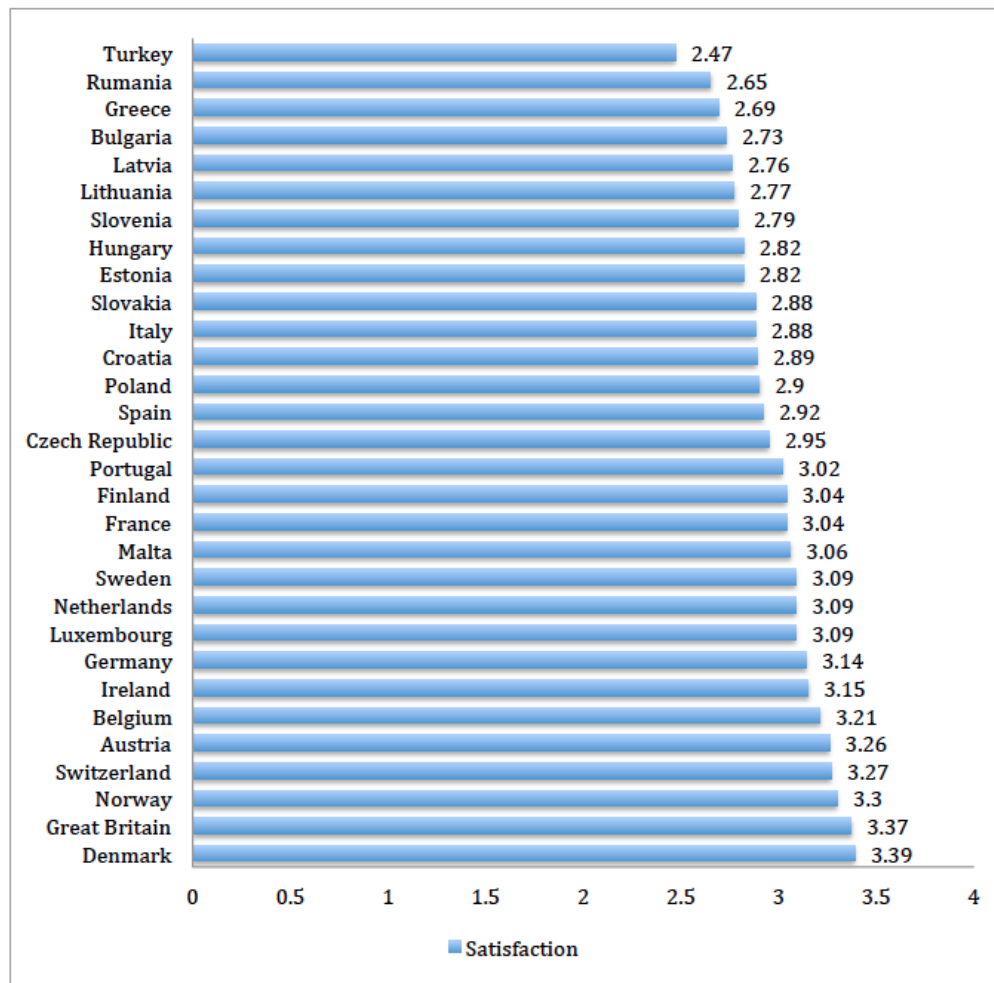
<http://en.rocketnews24.com/2013/06/19/japan-second-worst-in-g8-for-employee-satisfaction/>

The percentage saying that they are satisfied was 60% or higher for all of these countries with the exception of respondents from India.

Canada: 91%  
Great Britain: 91%  
Germany: 86%  
Italy: 86%  
U. S.: 86%  
Brazil: 86%  
South Africa: 81%  
Japan: 81%  
France: 81%  
China: 73%  
Russia: 60%  
India: 39%

An unresolved issue is whether the results of surveys using one-item questions reflect true levels of satisfaction or whether they are the consequence of biases. People may respond more positively to single item satisfaction measures because of social desirability bias. In other words, they state that they are more satisfied than they really so that others will view them as normal and happy people rather than as malcontents. Researchers can reduce social desirability bias with surveys that are anonymous and confidential. However, bias would still remain because of self-deception. This term refers to the fact

that people are not always totally aware of their own level of satisfaction and do not want to think of themselves as unhappy.



Respondents were asked “All in all, how satisfied would you say you are with your job?”. Responses alternatives were Not at all (1), Not too satisfied (2), Somewhat satisfied (3), Very satisfied (4).

Figure 5.3: Job Satisfaction in European Countries

Multi-facet questionnaire measures. As a consequence of both social desirability and self-deception, responses to one-item job satisfaction questionnaires are biased in a positive direction with the majority of people expressing positive attitudes. Although the use of one-item attitude measures continues to dominate national surveys, psychologists have attempted to deal with the potential problems with self-report questionnaires that measure attitudes toward specific facets of the job. In job satisfaction questionnaires, it is common to ask about facets such as the pay, one's supervisor, one's coworkers, the working conditions, the job itself, benefits, and other characteristics of the work and the work

context. It is also common to include an overall job attitude measure that consists of the average of responses to the ratings of the separate facets.

To illustrate, consider four multi-facet job satisfaction questionnaires: the Hoppock job satisfaction scale, the Faces scale, the Job Description Index (JDI), and the Minnesota Satisfaction Questionnaire (MSQ). While not exhausting the possibilities, they provide examples of some of the alternatives to measuring job satisfaction.

1. The Hoppock scale of job satisfaction. The true beginning of scientific, quantitative research on job satisfaction actually began back in the 1930s with Robert Hoppock who was a graduate student interested in applying newly developed scaling (measurement) techniques to the study of job satisfaction. He devised questions that people answered by referring to a scale ranging from 100 (extreme dissatisfaction) to 700 (extreme satisfaction). Although this seems like a common and simple task, collecting such data was a novel concept in the 1930s. With the aid of his father-in-law, he collected data from most working adults in New Hope, Pennsylvania. Hoppock discovered that approximately 88% of those sampled were satisfied with their jobs. He also found that the most satisfied workers were in the professional, managerial, and executive occupations (Hoppock, 1935). It is interesting to note that the percentage of respondents saying they are satisfied with their jobs is still high and has not changed a great amount in the years since Hoppock's research.

Hoppock's research is significant for two reasons. First, he developed one of the first contemporary job attitude surveys, and, therefore, provided a template for the data collection method that researchers would use in subsequent job attitude research. Second, researchers have replicated Hoppock's results repeatedly for over 55 years. In figure 5.4, the job satisfaction of the employees from the five categories of occupations that he sampled is provided, together with the rank order of responses in each category and the average or means response in each category. (Remember that the scale ranges from 100 to 700, with higher scores indicating greater satisfaction.)

Kahn measured satisfaction of workers in seven occupational categories with a job satisfaction survey in which the scale values ranged from 1 (very dissatisfied) to 5 (very satisfied). The pattern of results is very consistent across these two samples collected approximately 40 years apart.

If one takes into account the scaling differences in the two job satisfaction studies (that is, 100-700 vs. 1-5), another point becomes obvious. Considerable overlap exists among categories, with many laborers having reported as much job satisfaction as many professionals. Also, across all occupations, the average satisfaction score is skewed or distorted toward the high (satisfied) end of the scale. The high job satisfaction reported by most workers across all occupations is also an enduring finding of job satisfaction research. The existing data on relative levels of job satisfaction totally dispute the anecdotal perception that most people are unhappy with their jobs. Of course, these conclusions are based on mean or average responses; any one worker may report extreme dissatisfaction with his or her job.

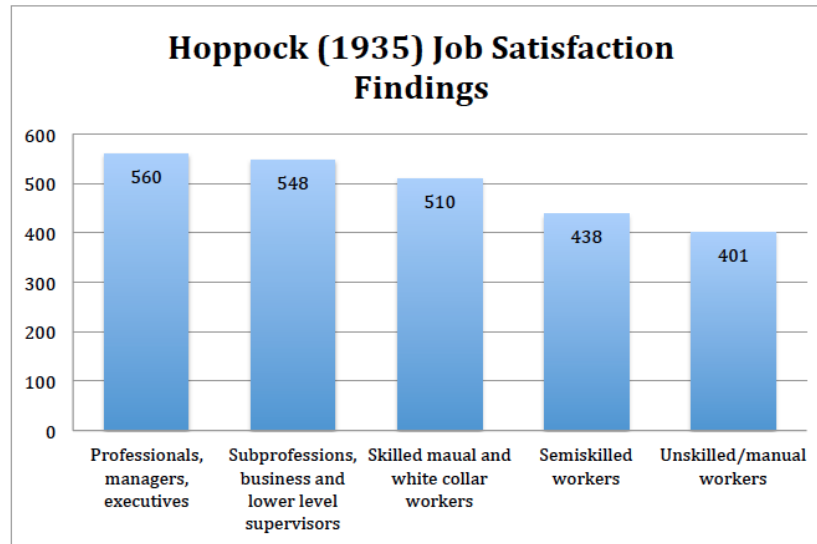


Figure 5.4: Differences Among Occupations on Job Satisfaction (Hoppock, 1935)

Compare Hoppock's results with data reported by Kahn (1981; excerpted from Quinn & Shepard, 1974; see figure 5.5).

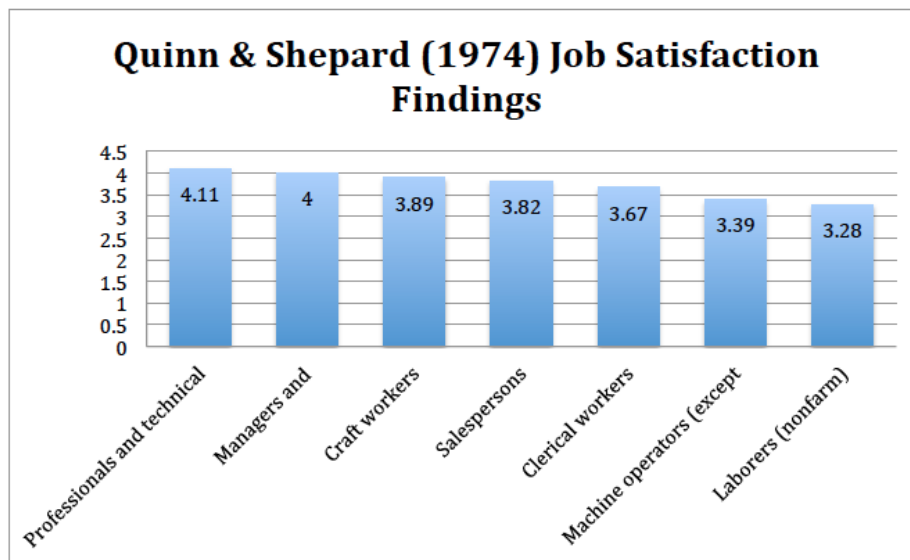


Figure 5.5: Differences Among Occupational Groups on Job Satisfaction (Quinn & Shepard, 1974)

2. Faces scale. The second oldest of the scales discussed here is the Faces Scale (Kunin, 1955). As depicted in figure 5.6, this scale requires respondents to indicate their degree of job satisfaction with a facet of the job by checking the drawing of the human face that most closely approximates their feelings. Both a male and a female (Dunham & Herman, 1975) version of the Faces Scale exist, and either form is appropriate for both male and female workers. Although the scale looks simple, Kunin (1955) actually used a complex

scale construction procedure to develop a set of expressions that spans extremes in attitude and also captures equal intervals between the extremes.

The Faces Scale is very quick and easy to answer and is generally acceptable as an approach to measuring satisfaction with the separate facets of a job such as salary, coworkers, supervision, and work conditions. The Faces Scale is the preferred method if workers have little time to fill out attitude surveys and or minimal reading or language skills.

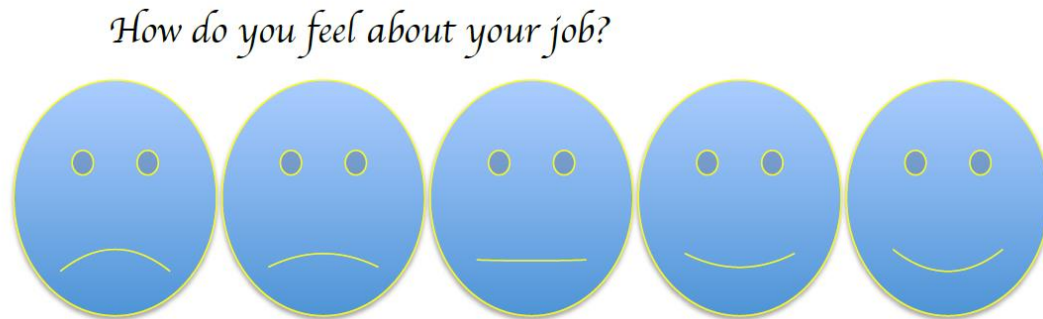


Figure 5.6: Faces Scale of Job Satisfaction

3. Minnesota Satisfaction Questionnaire (MSQ). The MSQ is the creation of Weiss, Dawis, England, and Lofquist (1967) and consists of 100-item job satisfaction scale with five items, each composing 20 facet scales (see table 5.1). The facets of the MSQ include satisfaction with advancement, compensation, coworkers, responsibility, and working conditions. The scale is scored as a global measure by summing across the 100 items as well as a facet measure by summing across the five items in any facet scale. Because of its length, most researchers use a 20-item short form of the MSQ. Typically, this 20-item version is used to assess global satisfaction. Factor analyses of the short form reveal two dimensions or facets within the 20 items, labeled intrinsic and extrinsic satisfaction. The intrinsic items refer to aspects of the work or job itself ("The chance to do different things from time to time"), and the extrinsic items refer to conditions or situations external to the job or work ("The way company policies are put into practice").

The authors of the MSQ systematically drew upon previously published scales and organizational theory to develop their scale. Their goal was to produce a job satisfaction instrument with superior measurement properties (i.e., good reliability and validity). As a global measure of job satisfaction, the MSQ achieves this goal admirably. However, researchers express some reservations about the adequacy of the intrinsic and extrinsic dimensions as separate facets of global job satisfaction (Cook, Hepworth, Wall, & Warr, 1981). Consequently, most users of the MSQ only score for global satisfaction.



Examples Of Items From the Minnesota Satisfaction Questionnaire					
Ask yourself: How satisfied am I with this aspect of my job?					
<b>VS</b> means I am very satisfied with this aspect of my job.					
<b>S</b> means I am satisfied with this aspect of my job.					
<b>N</b> means I can't decide whether I am satisfied or not with this aspect of my job.					
<b>DS</b> means I am dissatisfied with this aspect of my job.					
<b>VDS</b> means I am very dissatisfied with this aspect of my job.					
<b>On my present job, this is how I feel about:</b>	<b>VDS</b>	<b>DS</b>	<b>N</b>	<b>DS</b>	<b>VDS</b>
My pay and the amount of work I do.	[ ]	[ ]	[ ]	[ ]	[ ]
The freedom to use my own judgment.	[ ]	[ ]	[ ]	[ ]	[ ]
The working conditions.	[ ]	[ ]	[ ]	[ ]	[ ]
The feeling of accomplishment I get from the job	[ ]	[ ]	[ ]	[ ]	[ ]

Table 5.1: Sample Items from the Minnesota Satisfaction Questionnaire

4. The Job Description Index (JDI). The *JDI* is unlike the previously discussed job satisfaction measures in that it was developed specifically to measure satisfaction with different job components or facets. Smith, Kendall, and Hulin (1969) created the JDI by systematically developing and testing over 100 potential items. The authors created a scale that is easy to read and answer. Respondents are required only to check off the adjectives or phrases describing their jobs (see table 5.2). The five facet satisfaction scales are the work itself, pay, promotion opportunities, supervision, and coworkers.

Some researchers sum across the five facet scales to obtain an acceptable measure of global job satisfaction (Hulin, Drasgow, & Komocar, 1982). However, because the facets are only moderately intercorrelated, the authors do not recommend summing the facets to obtain an overall score. Instead, they advise using the job in general (JIG) scale, a measure contained in the latest version of the JDI and measures global job satisfaction (Ironson, Smith, Brannick, Gibson, & Paul, 1989).

The JDI is the most widely used measure of job satisfaction. Research on the measurement properties of the JDI has shown that it provides reliable and valid job facet satisfaction scales. One possible weakness of the JDI is that the five job facets are not comprehensive by today's standards. Four facets measure extrinsic satisfaction, or satisfaction with work conditions, and only one measures intrinsic satisfaction (i.e., the work itself). However, if interest does not extend beyond the five facet scales, the JDI is definitely the preferred measure of job facet satisfaction.

**Job Descriptive Index (Revised)**

Each of the five scales was presented on a separate page.  
 The instructions for each scale ask the employee to put **Y** beside an item if the item described a particular aspect of the job (work, pay, etc), **N** if the item did not describe that aspect, or **?** if the employee cannot decide.

**WORK**  
☐ Boring  
☐ Creative

**PROMOTIONS**  
☐ Good opportunity for promotion  
☐ Opportunity somewhat limited

**PAY**  
☐ Income adequate for normal expenses.  
☐ Less than I deserve.

**SUPERVISION**  
☐ Asks my advice.  
☐ Hard to please.

**COWORKERS**  
☐ Helpful  
☐ Stupid

Table 5.2: Examples of Items from the Revised Job Descriptive Index

Points to Ponder:

1. Consider your own attitudes toward a course you are taking and/or a job you have held. Where would you place your overall attitude on the Faces Scale?
2. What separate facets can you identify in relating your attitudes toward the course or job? How do your attitudes vary across the facets? Which are most important in determining your overall attitude toward the course or job and why?
3. Identify cognitive, behavioral, and affective components of your attitude toward the course or job.
4. To what extent do you believe your attitudes influence how well you perform in the course or job? Why or why not?
5. How has job satisfaction usually been measured? Which scale is more appropriate for workers with limited education? Which scale would tell a manager if his or her employees are dissatisfied with their pay?

## Work environment characteristics associated with job satisfaction

Using measures of satisfaction with the job in general and with the individual facets of the work, researchers have collected a huge amount of data on how various characteristics of the work environment are related to satisfaction. In considering these findings, remember that these findings are based on correlational research. The correlations provide evidence of “potential antecedents” of job satisfaction, but do not constitute proof that the correlates actually caused satisfaction. Given that much of the research was conducted by measuring both situational factors and job satisfaction with self-reports, one could just as easily conclude that the satisfaction of the worker led to perceptions of the situation as vice versa. Still, the findings suggest potential leverage points for employers seeking to increase worker satisfaction.

Job characteristics. Based on a meta-analysis of the correlations found between the core job characteristics and general job satisfaction, it is clear that people are more satisfied with their jobs to the extent that their job is high on the factors measured in the Job Characteristics Scale that was discussed in the last chapter (Fried & Ferris, 1987). In other words, they are more satisfied the more varied the tasks they perform ( $r = .45$ ), the more identity the job possesses, i.e., the tasks have a meaningful beginning and end ( $r = .26$ ), the more significant the job's impact in the organization and on other people ( $r = .35$ ), the more autonomy and input the employees have ( $r = .48$ ), and the more feedback they receive on their performance ( $r = .43$ ).

Fairness. People are more satisfied with their jobs if they perceive that they are treated fairly. A meta-analysis of the research on job satisfaction and justice found that workers were more satisfied with their jobs to the extent that they perceived that there was procedural justice ( $r = .62$ ) and distributive justice ( $r = .56$ ) (Colquitt, Conlon, Wesson, Porter and Ng (2001). In other words, job satisfaction is associated with situations in which people feel that they are allowed to have some input to decisions and the procedures used in the decisions are consistent, objective, justified, and open to appeal. Also, job satisfaction increases to the extent that people perceive that outcomes are equitably allocated.

Supervisory behavior. People are more satisfied with their jobs to the extent they perceive their supervisors as task oriented (i.e., they are organized and emphasize high productivity) and considerate (i.e., they are concerned about subordinate well-being and needs). Supervisors who are characterized by a laissez faire orientation (i.e., exert little leadership and are disorganized) are likely to have dissatisfied employees.

Cohesiveness of the group. People are more satisfied to the extent they work in cohesive work groups and like their coworkers. The authors of one meta-analysis of the relationship of group cohesion to satisfaction outcomes concluded that group cohesion was the strongest predictor of job/military satisfaction (Oliver, Harman, Hoover, Hayes, & Pandhi, 1999). Similarly, the authors of a meta-analysis examining the relation of group cohesion to satisfaction in virtual teams concluded that the strongest effect was

between group cohesion and satisfaction (weighted correlation = .57) (Lin, Standing, & Liu, 2008).

Participation in decision-making. People are more satisfied to the extent that they perceive that they are allowed to participate and have input into important decisions. The correlation of participation and job satisfaction is larger in studies in which both satisfaction and participation are measured with employee self-reports (Wagner, Leana, Locke & Schweiger, 1997). This suggests that some method bias is at work that might inflate the correlation. However, the findings suggest that participation is related to satisfaction, albeit at a modest level, and that the benefits are most apparent when the participation involves the generation, processing, and use of information not already available to the supervisor.

Pay. It is not surprising that people are more satisfied the more they are paid (Judge, Piccolo, Podsakoff, Shaw, and Rich, 2010). What is surprising, however, is that the relation is not strong. The authors of one meta-analysis found a correlation corrected for statistical artifacts of only .15, indicating a relationship that is much smaller than usually thought to exist (Judge et al, 2010). Although the corrected correlation between the amount paid and pay satisfaction was larger, this relationship also was small (.23).

Working conditions. People are more satisfied to the extent that the work environment is clean, low on stress, safe, and comfortable.

Flexibility of work schedules. People are more satisfied to the extent that they have flexible working schedules that allow them balance work and family and other non-work concerns.

Perceived discrimination, harassment, and bullying. Employees report more negative work-related attitudes to the extent that they perceive they are the targets of discrimination and harassment in the workplace. Based on a meta-analysis involving 79 correlations and a total sample of 14,452 employees, Triana, Jayasinghe and Pieper (2015) reported a mean uncorrected correlation of -.32 and a mean corrected correlation of -.38 (corrected for sampling error and unreliability) between perceived racial discrimination and work-related attitudes. Willness, Steel, and Lee (2007) found in a survey of employees that reports of sexual harassment were associated with lower job satisfaction. Nielsen and Einarsen (2012) found in their meta-analysis that employees were less job satisfied to the extent that they reported bullying in the workplace.

#### Points to ponder

1. To what extent do you believe there are individual differences among employees in how the various variables influence job satisfaction?
2. The variables listed in this section are called “potential antecedents.” For each one, describe the dynamics by which the variable might shape and cause the level of job satisfaction of workers? In your answer describe the potential mediators and moderators of the relationship.

3. Think of the jobs that you have held. How did these jobs compare on the characteristics listed above? To what extent did these factors influence your attitudes toward the job?

#### Personal characteristics associated with job satisfaction

In addition to situational characteristics, it is important to consider the personal characteristics of employees that they bring to the work situation and may influence their job satisfaction. These individual differences include traits such as personality characteristics and demographic characteristics such as race, age, and sex.

Demographic characteristics. Does job satisfaction vary as a function of demographic characteristics such as age, sex, and race? For example, are women, blacks, and older people more or less satisfied than the typical young, white, male worker? The research on the relation between personal characteristics and job satisfaction has yielded findings showing correlations that are quite small and often close to zero. When large differences are found among demographic subgroups, they are often surrogates for other variables, such as occupational level, education, and tenure. For example, women, minorities, and younger workers are often overrepresented in lower status jobs where job satisfaction is lower. In the research on demographic characteristics only the age of employees appears to show a consistent relationship to job satisfaction.

a. Sex. The research on sex differences in job satisfaction reveals very small differences for both global job satisfaction measures (Brush, Moch, & Pooyan, 1987; Mukerjee, 2014; Smith, Olsen, & Falgout, 1991) and measures of facet satisfaction (Andrisani & Shapiro, 1978; Hodson, 1989; Hulin & Smith, 1964; Mason, 1995; Saad, 2013; Tuch & Martin, 1991; Weaver, 1978). Also, the differences found between men and women has varied across studies. Some research provides support for a “happy female worker” hypothesis and shows that women express more satisfaction on global measures than men (Clark, 1997; Mukerjee, 2014; Sousa-Poza & Sousa-Poza, 2000). Other research findings show that women do not differ substantially on job satisfaction from men on most facets, with the possible exception of salary where they tend to express greater dissatisfaction (Saad, 2013). Based on an analysis of international data collected by Gallup, Tay et al (2014) conclude that women are equal to men in their job satisfaction but that women are more likely to report that the work situation provides an opportunity to do their best. These mixed findings are surprising given that women tend to have lower salaries and work in lower skill, more routine jobs than men. As stated in the title of one article, “Why aren’t women more dissatisfied?” (Hodson, 1989). The author in this case speculated that women use different comparison groups that lessen their dissatisfaction and are socialized to talk less about their dissatisfaction. Obviously more research is needed to determine the extent to which men and women differ on job satisfaction and why.

b. Ethnicity. The results are complicated with regard to ethnicity. The research typically shows that black employees express lower satisfaction than white workers (Forgionne & Peeters, Slocum & Strawser, 1982; Mukerjee, 2014; Tay, et al, 2014; Toch & Martin, 1991; Weaver, 1977, 1998). Based on an international sample, Tay et al (2014) report

that while black employees tend to report lower job satisfaction, Hispanics tend to report higher satisfaction, and Asian workers report the same satisfaction as white workers. Typically, the ethnic differences are small, but a more recent study explored 1997 data from two national surveys conducted in the U. S. and found that black respondents expressed substantially more dissatisfaction than white respondents (Mukerjee, 2014).

There is a need to address the cultural and structural reasons in attempting to make sense of the differences on job satisfaction among ethnic groups. Structural reasons refer to organizational factors that may contribute to racial differences; for example, relative to whites, blacks may not have ready access to mentoring relationships with (white) senior managers. The ethnic gap in satisfaction reflects in part the fact that black employees experience lower pay and poorer work conditions (Toch & Martin, 1991). However, there is some evidence that the racial gap remains even after salary, occupational level, and level of benefits are controlled and that perceived discrimination is the more important determinant of the dissatisfaction expressed by black employees (Mukerjee, 2014). Perceived discrimination is a powerful predictor of negative work-related attitudes as shown in a recent meta-analysis (Triana, et al, 2015). Cultural reasons refer to cultural differences in values or expectations. One researcher concludes that workers from different ethnic groups differ on reported job satisfaction both because of differences in how they are treated at work and in their own personal value systems (Moch, 1980). As in the case of gender differences on job satisfaction, a lot of unanswered questions remain in attempting to explain the lower levels of satisfaction reported by black employees.

c. Age. The research on age differences on job satisfaction shows that job satisfaction increases with age for all demographic groups, including women and minorities (Bourne, 1982; Hunt & Saul, 1975; King & Jex, 2004; Ng & Feldman, 2010; Rhodes, 1983; Tay, Ng, Kuykendall, & Diener, 2014)). Satisfaction is positively associated with age, even after controlling for the employee's tenure (Tay et al, 2014). This trend occurs for satisfaction with all facets except for satisfaction with promotions, where satisfaction appears to decline with age (Ng & Feldman, 2010). The increases in satisfaction with age appear somewhat stronger for employees who are minorities, those with longer tenure on the job, and those without a college education (Ng & Feldman, 2010). One explanation for these findings is that workers are initially dissatisfied with their jobs but eventually seek work that they find more satisfying. Another explanation is that people actually become more satisfied with (or perhaps more realistic about) their lives, including their work lives, over time. In support of this latter possibility, older workers often perceive they have fewer job options or alternatives and resign themselves to their job situations or (Pond & Geyer, 1987). Another explanation is socioemotional selectivity theory (Ng & Feldman, 2010). According to this theory, increases in job satisfaction reflect changes that occur with age in how employees invest their time and energy. Younger workers invest more time and effort in acquiring information that furthers their careers. Older workers place more importance on emotion regulation goals and invest more time and effort in social activities. Older workers seek out those who have provided emotional support and experience more gratification from their social interactions. More research is needed to test the alternative explanations for the positive relationship of age and satisfaction with the work itself. So far the findings are inconclusive and the reasons for

the age differences remains to be further explored (Barnes-Farrell & Matthews, 2007; Janson & Martin, 1982; Ng & Feldman, 2010).

d. Generational differences in job satisfaction and other work-related attitudes. Related to age are generational differences in job satisfaction and other work-related attitudes. Traditionalists born between 1920 and 1945 are stereotyped as conservative, disciplined, and hard working. Baby boomers born between 1945 and 1960 are stereotyped as materialistic, driven by the work ethic, and stressed. Generation Xers (i.e., born between 1960 and 1980) are stereotyped as skeptical and individualistic. Millennials (i.e., born between 1980 and 1999) are stereotyped as cynical, socially conscious, self-absorbed, and less engaged in their job, organization, and career.

Thousands of articles have been written in popular media about the implications of these purported generational differences. But what does the research show? The research comparing the generations on job related attitudes shows that older generations are slightly more satisfied with their jobs than younger generations, but that there are no meaningful or systematic differences among the generations on work-related attitudes (Costanza, Badger, Fraser, Severt, & Gade, 2012). In short, researchers have found that the overall levels of job satisfaction have changed very little since the first surveys in the 1930s. At any one point in time younger workers tend to report somewhat less satisfaction with their jobs than older workers, but pronouncements about large generational differences are unsupported in the research.

Personality. Some people tend to be satisfied or dissatisfied regardless of the situation in which they find themselves. This view places great importance on the personality traits of the individual and would suggest that the level of job satisfaction expressed by an individual is stable over time and situations. Four of the five Big Five personality factors (conscientiousness, extraversion, agreeableness, and neuroticism) are related to job satisfaction in a manner that appears consistent with theory and commonsense. Table 5.3 summarizes the results of two meta-analyses.

People who are conscientious, agreeable, and extraverted were found to be more satisfied with their jobs than those who were less conscientious and extraverted. Also, people who were higher on neuroticism were less satisfied with their jobs than those low on neuroticism. In this particular meta-analysis, four of the five personality traits were related to job satisfaction at a conventional level of statistical significance, but the size of the correlations were large enough to be considered substantial only for conscientiousness and emotional stability (i.e., neuroticism). Even stronger than the correlations found for the Big Five personality traits were the correlations between positive and negative affectivity and job satisfaction (Levin & Stokes, 1989; Ng & Sorenson, 2009). Positive affectivity is the disposition to experience positive states such as happiness, joy, elation, and pride. Negative affectivity is the disposition to experience aversive emotional states, such as distress, agitation, pessimism, and dissatisfaction. Not surprisingly, job satisfaction is higher for those with higher positive affectivity and lower negative affectivity.

Is job satisfaction stable across time and jobs? The common assumption is that job satisfaction is a response to the situation, but everyday observations of people at work suggest that there is a trait component. The reader no doubt has observed some people who are dissatisfied with their current situation but appear to be disgruntled no matter what their situation. Also observed are people who are satisfied regardless of the situation. Are these people simply prone to some level of satisfaction that is rooted in their personality?

Personality Trait	k	N	$r_{uc}$	$r_c$
Big Five Personality Trait (Judge, Heller & Mount, 2002)				
Neuroticism	92	24,527	-.24*	-.29
Extraversion	75	20,184	.19*	.25
Openness to experience	50	15,196	.01	.02
Agreeableness	38	11,856	.13*	.17
Conscientiousness	79	21,719	.20*	.26
Affectivity (Ng & Sorenson, 2009)				
Negative affectivity	109	39,105	-.29*	-.35
Positive affectivity	49	15,389	.39*	.49

*k* = number of correlations; *N* = number of participants;  $r_{uc}$  = mean correlation weighted by sample size (uncorrected);  $r_c$  = corrected correlation; \* = confidence interval for correlation excluded zero.

Table 5.3: Results from Meta-analyses of the Correlations of Big Five and Affectivity

Several researchers have presented compelling evidence of a trait component in job satisfaction. They have shown that people who are relatively satisfied tend to remain satisfied regardless of the job whereas those who are relatively dissatisfied remain dissatisfied regardless of the job. Staw and Ross (1985) reported this on the basis of an investigation of the job satisfaction of a national sample of 5,000 male workers over a five-year interval. Regardless of whether the workers changed jobs or occupations, the researchers found that job satisfaction reported by individuals was stable over time. A meta-analysis of test-retest of job satisfaction over approximately 3-year intervals reveals a mean corrected correlation of .50 (Dormann & Zapf, 2000). The authors in this case suggest that because the correlations were not corrected for restriction of range, this is an underestimate. The findings of subsequent research demonstrate that work-related



attitudes reflect not only personal disposition to be satisfied or dissatisfied but also the characteristics of the jobs that workers perform (Steel & Rentsch, 1997). Nevertheless, there is a remarkable stability in job satisfaction and personal dispositions appear to play an important role.

a. Adaptation level and opponent process. Both of these factors suggest that each individual has a point of equilibrium in their job satisfaction and that stabilities in job satisfaction over time reflect reactions to job events that maintain or restore this equilibrium (Bowling, Beehr, Wagner & Libkuman, 2005). Adaptation level theory proposes that past exposure to stimuli establishes a frame of reference that going forward is used in judging and reacting to the same stimuli. A person who has experienced only boring and menial jobs in his career evaluates his current boring job positively against the adaptation level formed from past experiences. He might even consider the current job as satisfying relative to this adaptation level. If a job is encountered that is much greater than the adaptation level, the person might respond quite positively due to the contrast effect but over time with continued exposure to interesting, challenging work, a new adaptation level emerges that is used to evaluate the work. According to this explanation, employees are always adapting to changes in work situations and as a consequence their job satisfaction remains stable. This is somewhat similar to Herzberg's theory who stated that the positive boost coming from hygiene factors in the job are always temporary. Eventually the worker asks "what have you done for me lately?" Adaptation level theory would propose that this can occur for all features of the work, not just hygiene factors such as compensation. The point of equilibrium (the set point) is often considered a personal disposition reflecting the personality and biology of the individual.

Opponent process theory proposed that job satisfaction emanates from a person's physiological states (Landy, 1978). This theory assumes that when one experiences an extreme emotional state, central nervous system mechanisms attempt to bring one back to a state of emotional equilibrium or neutrality. Unlike adaptation level theory, the experience of an emotion that creates disequilibrium does not lead to simple return to neutrality but instead activates an oppositional process. This oppositional process involves an emotional state that is opposite to the emotion that created the disequilibrium. An example might clarify opponent process theory. Consider an employee who is typically unhappy about his job and the small salary increases. One day, to his surprise, he receives a large salary increase. After a moment of elation, he becomes sad and depressed. According to the theory, the magnitude of the opponent process changes over time, increasing each time it is activated. Consequently, upon receiving future salary increases, the employee's eventual opponent process reaction is considerably more negative than prior reactions. The effect is to keep the employee at about the same level of job satisfaction over time.

b. Genetics as a factor in the stability of job satisfaction. Based on the findings of stability of job satisfaction over time some researchers have gone so far as to suggest that work-related attitudes are genetically based and inherited. Arvey and his colleagues (Arvey, Bouchard, Segal, & Abraham, 1989) were able to cast some light on this proposition in an unusual study with 34 pairs of identical twins who were reared apart. To the extent

that no systematic differences in the work environments exist between each sibling pair, differences between an individual and his or her twin would seem to reflect a genetic influence on satisfaction. The researchers discovered that approximately 30% of the variance in job satisfaction in the sample of identical twins was due to genetic factors. Many of the twin pairs also had similar lifestyles and jobs. From these data, the researchers speculated that people are genetically programmed to seek out certain occupations and to respond to them in particular ways. More recent research assessing the proportion of variance in job satisfaction attributable to heritability reveals that all the genetic influence on job satisfaction is explained by personality (Hahn, Gottschling, König, & Spinath, 2015). Identical twins tend to be similar on extraversion, emotional stability, and conscientiousness, and it is these personality traits that account for that proportion of variance in job satisfaction is the consequence of genetics. These more recent findings confirm that about 30% of the variance is heritable but that both genetics and the environment of the worker play important roles.

The implication is that people are predisposed to satisfaction or dissatisfaction and organizations have less influence over employee attitudes than commonly believed. The research findings for job satisfaction as a disposition are both provocative and disturbing. If job enrichment and other changes in the work environment are not especially worthwhile, then perhaps employers should focus their efforts on selecting employees who are prone to satisfaction and rejecting those who are prone to dissatisfaction rather than attempting to make work environments more satisfying. The ethical dilemmas posed by these possibilities are obvious. On the brighter side, the findings show that environmental factors are still important with genetic factors accounting for only 30 – 70% of the total variance. In addition, it is important to keep in mind that correlations reflect the rank order of individuals on a measure and that changes can still occur on the variable in question even as the rank order remains the same. As noted by Arvey et al. (1989), "Job enrichment efforts may, however, have the intended effect of raising mean levels of job satisfaction for the individuals involved, even though rank ordering of individuals is preserved" (p. 191). In other words, changing the job to enhance intrinsic satisfaction will make everyone more satisfied at the same time that some workers remain relatively more satisfied (or dissatisfied) than others.

#### Person-environment fit as an antecedent to job satisfaction

So far the review has focused on the separate influence of characteristics of the work environment and personal characteristics of the employee. In addition to a direct relation connection of job satisfaction to the work situation and personal characteristics, these two antecedents also appear to interact in determining job satisfaction. More specifically, employees whose personal characteristics provide a good fit to the environment report higher job satisfaction. The research has shown that people are more satisfied with their jobs to the extent that they have attitudes, values, personality traits, and abilities that provide a good fit to the various characteristics of the work environment. The correlation between fit and satisfaction are substantial with one meta-analysis reporting that job satisfaction increased with increased fit to the job ( $r = .56$ ), supervisor ( $r = .44$ ), group ( $r = .31$ ), and the organization ( $r = .44$ ) (Kristof-Brown, Zimmerman & Johnson, 2005). The

authors of this meta-analysis also found that good fit to the work environment was positively correlated with job performance. A good fit possibly is the result of the traits and other personal characteristics that employees bring to their work situations. This suggests that hiring people to provide a good fit to the work environment as a strategy for enhancing employee job satisfaction and job performance. Given that these are correlational findings, there are alternative explanations. For instance, it is also possible that the more satisfied and higher performing employees are able to modify their work to fit their personal characteristics or modify their personal characteristics to fit their work.

#### Points to ponder

1. Pose a hypothesis for why older employees might express higher levels of satisfaction than younger workers? How would you conduct research to test this hypothesis?
2. Do you believe it is ethical to hire employees based on their likely satisfaction with the job and the organization?
3. Describe the personality traits of the satisfied employee?
4. If the level of satisfaction of an employee tends to remain stable over time does this mean that organizations do not need to do things to increase satisfaction? Why or why not?

#### How does job satisfaction form?

Several potential factors associated with the work situation and the personal characteristics of employees are related to job satisfaction. The next question concerns the processes that mediate these antecedents and the level of employee satisfaction. For instance, why does an employee with a low degree of task variety, autonomy, significance, feedback, and identity form a relatively negative attitude toward the job while an employee with high degree of these characteristics form a more positive attitude? Three general processes appear to determine the formation of attitudes and serve as mediators of the relation between the antecedents and employee job satisfaction.

1. Comparisons against personal standards: What do I have vs. what do I need, value, or consider important?
2. Social comparison and social information: What do others have compared to what I have and what are the attitudes of others?
3. Emotional and physiological states: What are my general mood and emotion and my physiological state?

Comparison against internal standards. Comparison theories of satisfaction are a class of cognitive, process-oriented theories of job satisfaction (see figure 5.7). Comparison theories describe workers as going through a process in which they consider how much of some characteristic they *actually have* in their present jobs and how much of this characteristic they would *like to have* in their present jobs. The perceived discrepancy between the two (actually have and would like to have) determines the level of satisfaction that employees express with the job and the various job facets. The characteristic in question is typically framed in terms of different types of comparisons,

such as needs, values, desires, expectations, or aspirations. For example, the questionnaire might ask how much opportunity for social interaction there is in the present job and how much social interaction is preferred. The larger the discrepancy between the amount present and the amount desired, the lower the reported job satisfaction (Porter, 1962). The smaller the discrepancy, the higher the reported job satisfaction.



IT WAS A DUMB JOB IN A DUMB TOWN, AND RICKY WAS DUMB, TOO. THAT'S EXACTLY WHY HE WAS A HAPPY GUY.

One type of "standard" is a human need. Among the needs discussed in the chapter on motivation were needs for achievement, affiliation, esteem, power, and the like. Using the comparison against internal standards approach, the need is an ideal against which workers compare their current state or situation. Porter (1962) incorporated the concept of attained versus desired needs in his *Need Satisfaction Questionnaire* (see table 5.4). Porter assumes that in forming attitudes toward their jobs, employees mentally compute the discrepancy between how much they are receiving in their jobs across the specific facets of the job and how much there should be of each of these facets. If one takes the sum of all the "should" ratings and subtracted from this total the "how much" ratings, higher need satisfaction in the job is reflected in a larger, more positive total. Some versions of the scale also have respondents rate the importance each need.

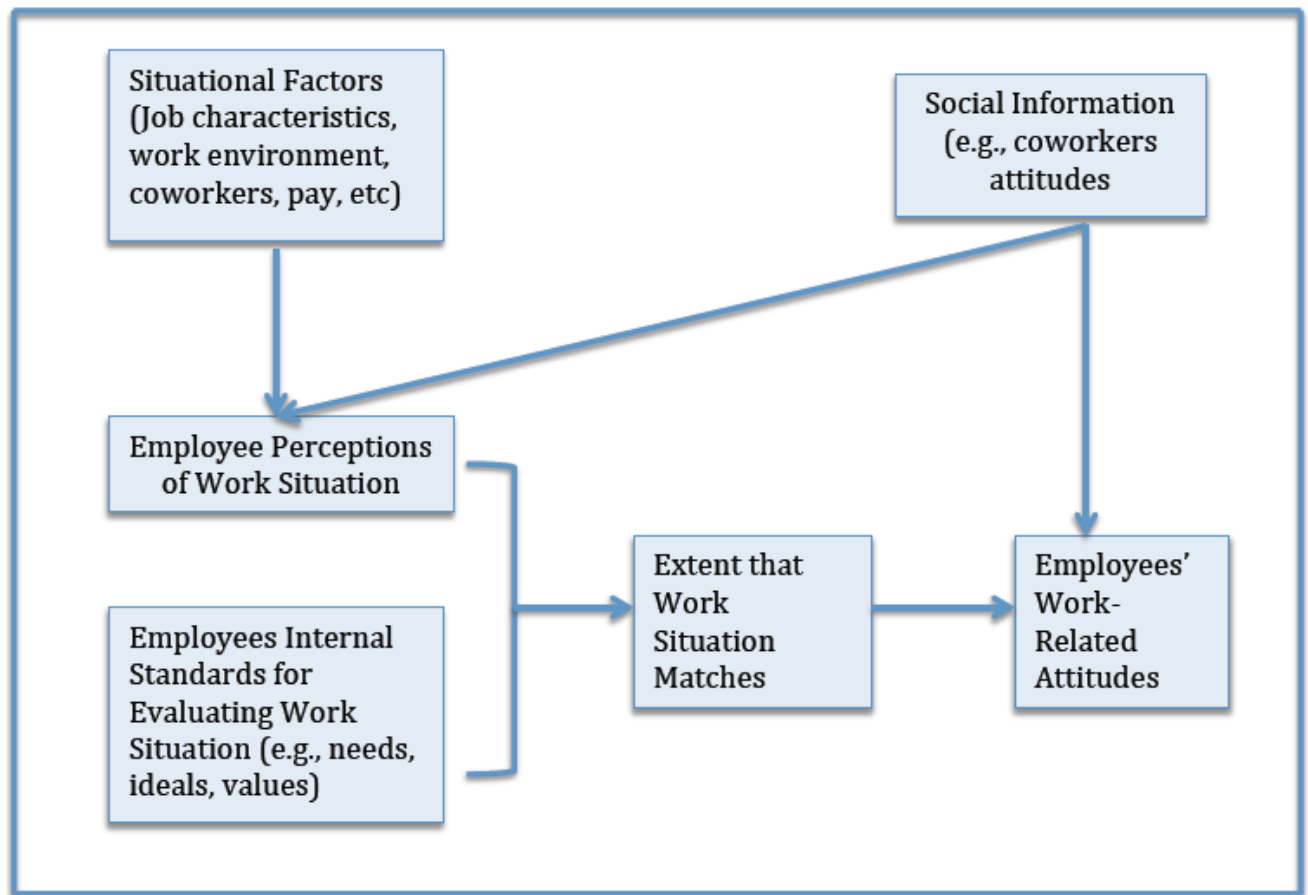


Figure 5.7: Cognitive Judgment Approach to Work-Related Attitudes

The concept of values is potentially useful in understanding worker attitudes. Although workers may need a certain amount of autonomy or pay, Locke suggests that their attitudes will depend on how much they value these factors. Because people work for valued outcomes, values should predict job satisfaction beyond the influence of needs. Regardless of whether values or needs constitute the basis of work-related attitudes, both Porter and Locke propose in their theories that workers go through a cognitive process in which they focus on their private standards in forming their work-related attitudes.

Need	How much is there now?	How much should there be?
<b>Security needs</b>		
1. The feeling of security in my current position	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
<b>Social needs</b>		
2. The opportunity in my current position to develop close friendships.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
3. The opportunity in my current position to develop close friendships.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
<b>Esteem needs</b>		
4. The feeling of self-esteem a person gets from being in my current position.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
5. The prestige of my current position inside the company (that is, the regard received from others in the company)	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
6. The prestige of my current position outside the company (that is the regard received from others)	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
<b>Autonomy needs</b>		
7. The authority connected with my current position.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
8. The opportunity for independent thought and action in my current position.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
9. The opportunity in my current position for participation in the setting of goals.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
10. The opportunity in my current position for participation in the determination of methods and procedures.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
<b>Self-actualization needs</b>		
11. The opportunity for personal growth and development in my current position.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
12. The feeling of self-fulfillment a person gets from being in my current position (that is, the feeling of being able to use one's own unique capabilities, realizing one's potentialities.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum
13. The feeling of worthwhile accomplishment in my current position.	Minimum 1 2 3 4 5 6 7 Maximum	Minimum 1 2 3 4 5 6 7 Maximum

Table 5.4: The Need Satisfaction Questionnaire

Critics of the need comparison theories have identified both conceptual and statistical problems with the idea of comparisons against internal standards. Need comparison theory assumes that people make logical and rational comparisons between what they have and what they need. Contrary to the notion that people make calculated judgments, psychologists have accumulated evidence showing that people typically are not especially rational decision makers and rarely engage in methodical comparison processes (Slovic, Fischhoff, & Lichtenstein, 1977). For example, they often do not go through each of their needs determining how much they want and then check off how they have in forming an opinion. Instead, form an attitude quickly based on very little information. The calculation of job satisfaction by subtracting what the subject has (or what relevant others have) from what he or she desires or needs has also been criticized. A problem with this use of difference scores is that what participants believe they currently have frequently does as well in predicting outcomes as the difference between what they have and what they need (Wall & Payne, 1973). This is most likely to occur to the extent that respondents are similar in their self-reported needs.

Locke (1976) proposed a somewhat different type of comparison theory. The value comparison theory of work-related attitudes is based upon the premise that people have positive attitudes toward their jobs if their jobs provide them with what they desire or value. He defines needs as imperative for survival whereas he defines values as highly subjective desires that determine satisfaction but are not necessary for survival. According to Locke, values affect the range of responses more than the actual level of satisfaction. For example, if employees value autonomy in their jobs, any increase or decrease in the level of autonomy will cause wide variations in their job satisfaction. However, if the employees do not value autonomy, then they are indifferent to changes in the level of job autonomy.

Social comparisons. When satisfaction results from comparisons against personal standards, workers focus on their own needs, aspirations, expectations, or values to assess their work-related attitudes. Another source of attitudes is the information obtained from our social environment (Goodman, 1974). In the social information processing approach, work-related attitudes originate from looking outside of one's self and focusing instead on the various social cues in the environment (see figure 5.8). These social cues suggest how one should feel and think about facets of the job.

Social information (which is in the upper left hand box) can come in different forms. One version is in the form of direct comparisons that workers make with other people (i.e., comparison others). As discussed in the last chapter, Adam's equity theory of motivation proposes that workers ultimately determine their job satisfaction by comparing their relevant job inputs and outputs to referent (comparison) others. In determining her level of job satisfaction, a worker might consider that she brings an MBA and ten years of business experience to a responsible managerial job. A coworker, her referent other, has only a bachelor's degree and eight years of experience. The coworker's job is also a managerial position, but with less responsibility and a slightly higher salary. Consequently, the worker, after weighing the various inputs, outcomes, and amounts received, feels dissatisfied with her pay.

Salancik and Pfeffer (1978) proposed another source of work-related attitudes in their social information processing theory. They proposed that people form job attitudes by observing the attitudes of relevant others or by attending to available contextual information. If a worker takes a new job and everyone on the job seems unhappy and depressed, this serves as a cue that the job is a dissatisfying one and the worker might just form an attitude consistent with what others are experiencing. In a laboratory experiment testing this hypothesis, participants were given either an interesting or a dull task to complete and then heard coworkers who were accomplices of the researcher state that the task was either interesting or dull (White & Mitchell, 1979). Consistent with Salancik and Pfeffer's predictions, participants who heard coworkers describe the task as interesting were more satisfied with the task than research participants who heard coworkers describe the task as dull.

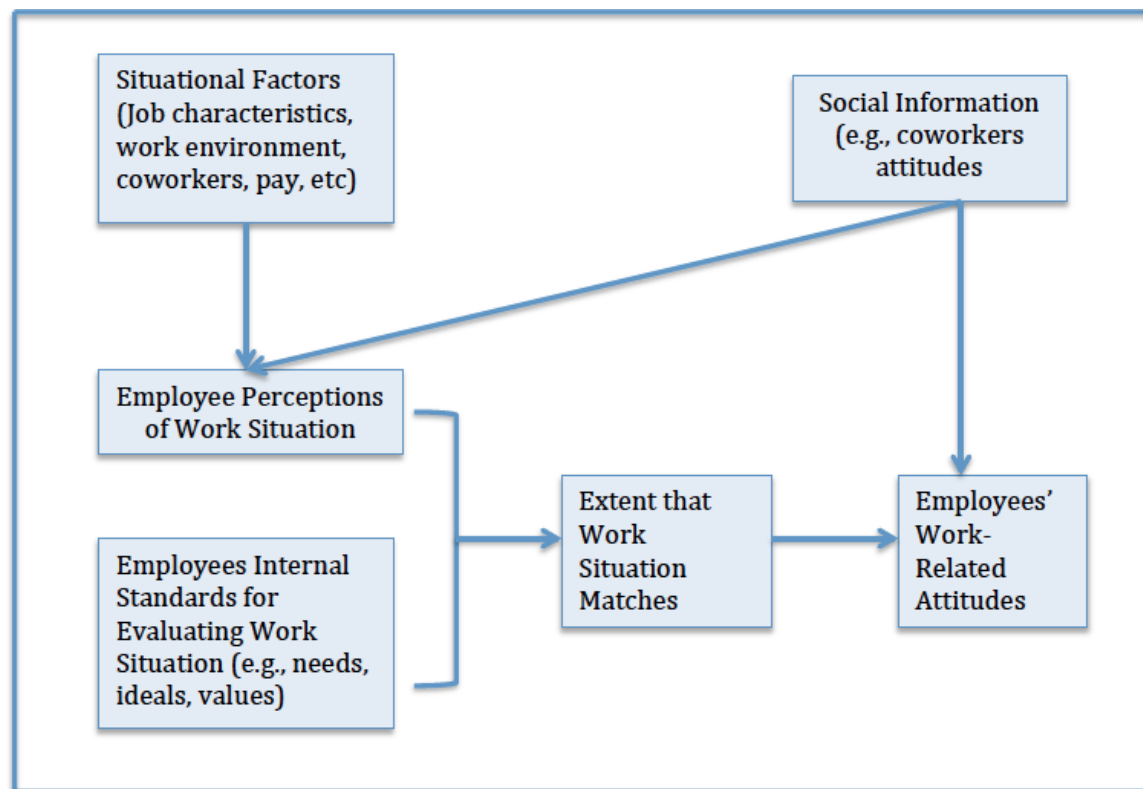


Figure 5.8: Social Information Approach to Work-Related Attitudes

Although a few field tests have supported social information processing theory (e.g., Griffin, 1983), most of the tests of the theory have used college students who performed artificial tasks in the laboratory for short periods of time. The laboratory research demonstrates that expressions of job attitudes by others “can” influence workers' perceptions of the objective characteristics of their jobs. The extent to which these effects occur in actual organizational settings is open to debate. In organizational settings, so many other factors are present that the simple comments of fellow workers probably affect work-related attitudes less than the laboratory results suggest. The experiments conducted so far have provided only weak support for the hypothesis that social cues influence perceptions of the task and job satisfaction (Zalesny & Ford, 1990). Nevertheless, social information deserves our attention as one of several potential sources of work-related attitudes.

Affective and physiological states. The affective and physiological reactions of the employee are particularly important mediators of the effects of the workplace events and other antecedent variables on job satisfaction. A common visualization of affect is in terms of the circumplex in figure 5.9. One can distinguish among affective responses on two dimensions. First, there is the extent to which the affect is positive or negative. Second, there is the intensity of the affect and the extent to which the affect reflects a state of arousal and activation or reflects a relative quiet state.



Employees experience on a daily basis both events that evoke positive affect (e.g., feelings of pride from being recognized by one's boss for a job well done, excitement over helping a client) and negative affect (e.g., feelings of rejection resulting from criticism from peers for not going along with the group, boredom associated with tedious, routine tasks). As depicted in figure 5.10, one could conceive of job satisfaction as shaped by the events in the workplace that evoke varying levels of positive and negative affect. Job satisfaction is viewed by some theorists as an equilibrium point that emerges over time from repeated experiences of positive and negative affect. If the preponderance of one's affective experiences are negative, then one could expect a low level of job satisfaction to emerge as the equilibrium. If the preponderance of one's affective experiences are positive, then one could expect a high level of job satisfaction to emerge as the equilibrium. Once formed, the average job satisfaction that emerges over time is an equilibrium that serves as a “set point” influencing how the employee reacts affectively to future work events. The theory borrows from evidence that the body is self-regulating and will respond to conform to genetically determined set points. For instance, some research suggests that people are born with a genetically determined set point in the form of the body weight to fat ratio. When this ratio crosses a critical threshold and is either higher or lower than the set point, the person’s physiology kicks in to bring the ratio back in line with the set point. Similarly, affect event theory proposes that people have affect set points and that when satisfaction, mood, happiness, and other affective responses rise above or fall below critical thresholds, individuals respond in ways that reestablishes equilibrium. This theory of job satisfaction also is relevant to control theory, a meta-theory that was discussed in the last chapter as a potential framework for integrating the various theories of work motivation.

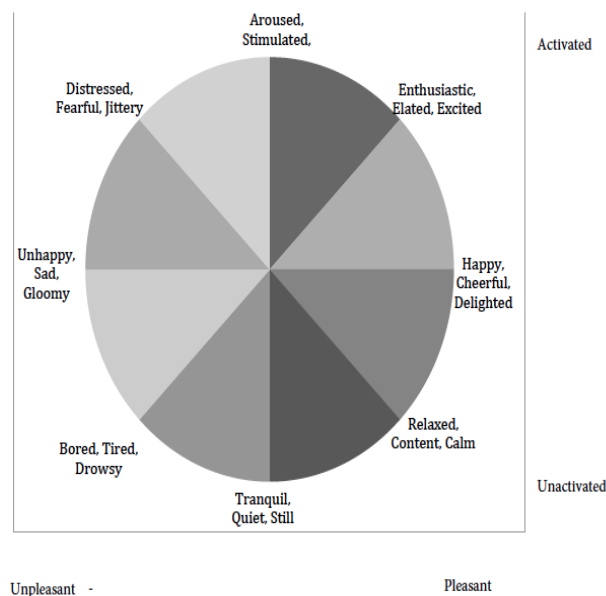


Figure 5.9: The Affect Circumplex

Two types of affective experiences occur in both work and non-work settings. Mood states represent general negative or positive affective states that are not related to any

specific event. Emotion represents a more specific affective reaction to specific events. Moods are also generally thought of as having minimum impact on thought processes, whereas emotions, especially when intense, disrupt thinking.

In one study examining the relation of mood and job satisfaction, university employees reported their mood and job satisfaction three times a day, at 9 am, 12 pm and 3 pm, for 2 weeks (Judge & Ilies, 2004). Mood was measured by having the employees rate their mood at each of these times on a series of adjectives. Job satisfaction was measured by having the employees rate their satisfaction with the job at that moment. For instance, one question asked "Right now each minute of work seems like it will never end" and another asked "Right now, I find real enjoyment in my work." As one might expect, ratings of more positive affect were associated with ratings of higher job satisfaction and ratings of more negative affect were associated with ratings of low job satisfaction. However, while current mood measured on one day was related to job satisfaction on the same day mood was not strongly related to job satisfaction measured on subsequent days. The effects of current mood on job satisfaction appeared relatively short-lived.

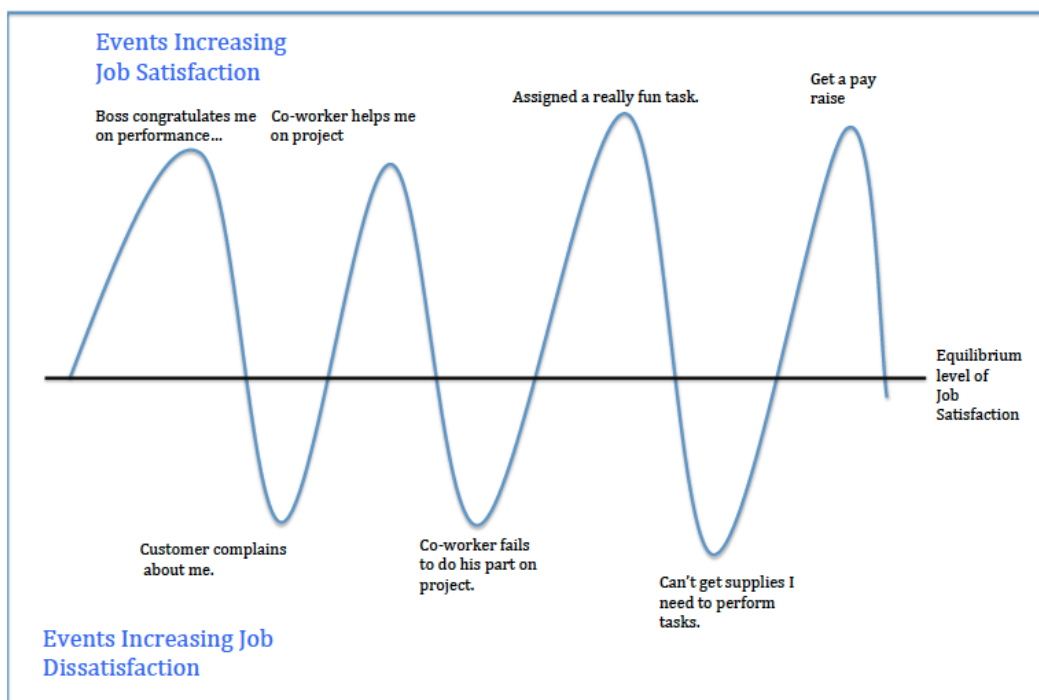


Figure 5.10: Daily Ups and Downs in Job Satisfaction as a Result of Affective Events on the Job.

Over time one could expect recurring moods and emotions at work would lead to more permanent work-related attitudes. This is exactly what Weiss and Cropanzano (1996) state in their Affective Event Theory (see figure 5.11). They propose that in addition to comparisons against personal standards, social information, and personal dispositions, that emotions and moods have a direct effect on work-related attitudes. Positive and negative events at work affect affective reactions. The attitudes that employees hold

toward the facets of their work (e.g., coworkers, supervisor, work itself, etc.) form around the strong and recurring affective reactions to the work events that a person experiences. Attitudes are also directly influenced by the objective and perceived features of the work (e.g., how much pay is received). The primary message of Affective Events theory is that experiences at work evoke strong feelings that become associated with the job and play a major role in shaping work-related attitudes. The influence of these affective reactions is independent of rational comparisons of work facets against internal or external standards.

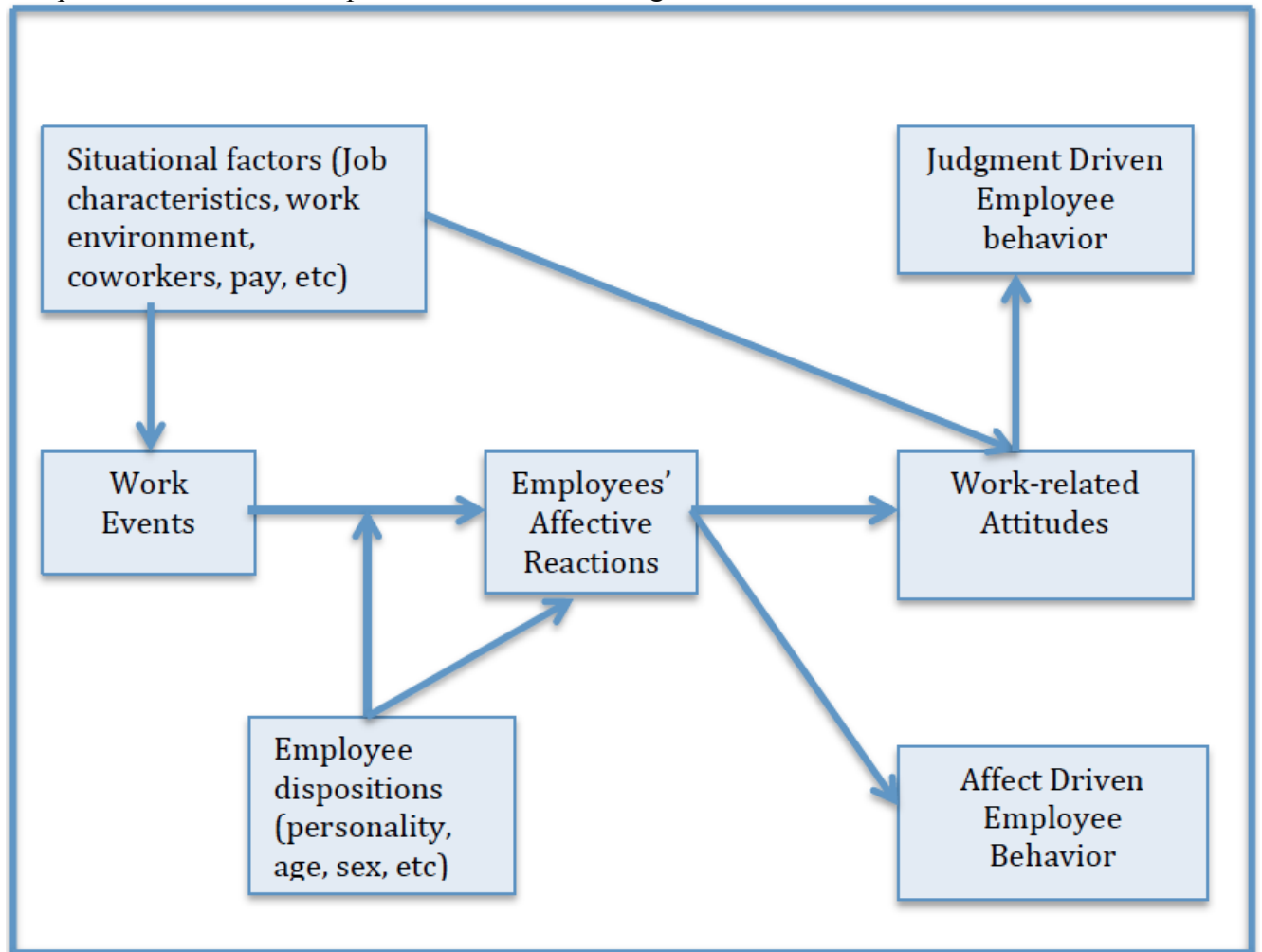


Figure 5.11: Affective Events Theory

Points to ponder

1. Use the affective event theory of job satisfaction to describe how you formed attitudes toward a job that you have held.
2. In forming an attitude toward a job, describe how comparisons against personal standards conflict with social comparisons.

3. Imagine that you are a supervisor of work group. How would you use what you know about the processes by which attitudes form to make sure that the employees in your work group are satisfied?

#### Outcomes of job satisfaction/dissatisfaction

Why should researchers in I/O spend so much time and effort on the topic of job satisfaction? Possibly as a consequence of the human relations movement and early research such as the Hawthorne studies, a lot of social scientists and practicing managers came to believe that a satisfied worker is a more effective worker. The research over the last 100 years or so generally supports this hypothesis to some extent. Although the strength of the relationship is far less than the strongest human relations advocates would propose and there are variables that appear to moderate the relationship, higher job satisfaction is associated with a variety of positive outcomes. Table 5.5 summarizes the correlations found between job satisfaction and outcomes in meta-analyses with thousands of employees. As seen here, a satisfied employee

- \*\*\*is less absent from work,
- \*\*\*is less likely to leave the job (turnover),
- \*\*\*is less frequently late to work,
- \*\*\*tends to show more organizational citizenship (behaviors that help out coworkers and others but are not required as part of the job),
- \*\*\*is less likely to show counterproductive behavior such as fighting, theft, and the like,
- \*\*\*receives more positive supervisory performance ratings
- \*\*\*performs more effectively on objective measures
- \*\*\*rates his or her own performance more positively
- \*\*\*is more committed to the organization.
- \*\*\*evaluates his or her life satisfaction and happiness more positively
- \*\*\*reports less role stress (conflict and ambiguity)
- \*\*\*is mentally healthier
- \*\*\*is physically healthier

This is an impressive list of potential benefits of higher job satisfaction, but the link between job satisfaction and these other variables is not a simple one. To repeat an earlier assertion, these are the results of correlational research and one cannot conclude on the basis of the research that job satisfaction causes changes in these variables and these are outcomes of job satisfaction. One can only say that they are *potential* outcomes and are potentially caused by job satisfaction. Also, it is important to note that the correlations in table 5.5 are statistically corrected and are higher in most cases than what would typically find in an individual study. Also, as already mentioned, a variety of variables appear to moderate many of these relationships. Now let us turn to some of the potential moderators of the relationship of job satisfaction to performance, attendance, and life satisfaction.

Are satisfied workers high performing workers? There is a small positive correlation between job satisfaction and employee performance. One meta-analysis of research

reports an average uncorrected correlation of only .14 (Iaffaldano & Muchinsky, 1985). Note, that a higher correlation was reported on the previous page (a correlation of .30), but the correlation reported in table 5.5 is *corrected* for statistical artifacts. When uncorrected correlations are reported, it is common to find a correlation between satisfaction and performance in the low teens. There is a small, positive correlation between job satisfaction and job performance, but it is a SMALL relationship.

Variable	k	N	$r_{uc}$	$r_c$	Source
Job performance (other rated and objective)	312	54,471	.18*	.30	Judge, Thoresen, Bono & Patton, 2001
Life satisfaction	53	29,404	.40*	.48	Bowling, Eschleman, & Wang, 2010
Customer satisfaction	22	5,606	.14*	.16	Brown & Lam, 2008
Org. commitment	63	33,797	.59*	.71	Tett & Meyer, 1993
Turnover	49	13,722	-.14*	-.25	Tett & Meyer, 1993
Presenteeism	51	51,088	.08	.12	Miraglia & Johns, 2015
Perceived stressors	99	29,995	-.38*	-.46	Podsakoff, LePine & LePine, 2007
Lateness	15	3,767		-.11	Harrison, Newman & Roth, 2006
Absenteeism	25	4,741		-.17	Harrison, Newman & Roth, 2006
Psychological capital (reports of hope, optimism, resilience and efficacy)	10	3,123	.45*	.54	Avey, et al, 2011
Emotional exhaustion (burnout)	17	4,000	-.26*	-.31	Lee & Ashforth, 1996
Role Ambiguity	52	11,187	-.37*	-.46	Fried, Shirom, Gilboa & Cooper, 2008
Role Conflict	54	11, 851	-.34*	-.42	Fried, Shirom, Gilboa, & Cooper, 2008
Self-rated performance	64	15,749	.16*	.19	Fried, Shirom, Gilboa, & Cooper, 2008
General Mental Health	142	95,814	.32*	.38	Faragher, Cass & Cooper, 2005
Subjective physical Health	119	58,762	.24*	.29	Faragher, Cass & Cooper, 2005
Interpersonal aggression	9	2,209	-.14	-.18	Hershcovis et al, 2007
Organizational Aggression	6	1,345	-.31*	-.37	Hershcovis et al, 2007

K = number of correlations; N = number of employees;  $r_{uc}$  = mean correlation between job satisfaction and variable, weighted by sample size;  $r_c$  = mean corrected correlation between job satisfaction and variable; \* = confidence interval for the correlation excludes zero.

Table 5.5: Correlations of Job Satisfaction with other Job-Related Variables.

Moderators of the relation between satisfaction and performance. Contemporary researchers hypothesize that the correlation between satisfaction and performance is moderated by other variables. Two of the moderator variables explored in the previous

research are the extent to which rewards are provided contingent on performance and the specificity with which attitudes and performance related behavior are measured.

1. Contingency of rewards on performance. One variable that has shown promise as a moderator of the relationship between satisfaction and performance is the contingency between performance and rewards. The hypothesis is that among workers who receive higher rewards, such as praise, promotions, or money, for good performance and lower rewards for poorer performance, show a positive correlation between satisfaction and performance. By contrast, among workers whose rewards are unrelated to performance, the correlation between satisfaction and performance is negative.

Cherrington, Reitz, and Scott (1971) demonstrated the influence of rewards on the satisfaction-performance link in a laboratory experiment. Two groups of research participants were given a task to perform; one group received rewards based on performance and the other group did not (see table 5.6). For the group that was appropriately rewarded, the correlation between satisfaction and performance was positive, for the group that was not appropriately rewarded, the correlation between satisfaction and performance was negative. However, when the satisfaction-performance correlation was computed for both groups combined, the correlation was near zero.

2. Specificity and correspondence. Fisher (1980) voiced an interesting perspective on this issue. She maintained that the low relationship between satisfaction and performance is partially a function of how researchers typically measure satisfaction and performance. Two aspects of the measure that appear important are the level of specificity and the correspondence between the attitude and the behavior.

Some years ago, Fishbein and Ajzen (1975) proposed that general attitudes are better predictors of general behaviors and specific attitudes are better predictors of specific behaviors. Following this reasoning, one could expect a relatively low correlation if one variable is measured with global, nonspecific measures and the other variable is measured at a more specific level. For example, a low correlation is likely if job satisfaction is measured with a nonspecific measure (e.g., in general, how satisfied are you with your job) and performance is measured on a specific facet of performance (e.g., how good is the performance in dealing with customers). One could also expect a low correlation if job satisfaction is measured with a specific measure (e.g., how satisfied are you with that part of the job involving customer relations) and performance is measured with a nonspecific measure (e.g., in general how well does the employee perform). The satisfaction and performance measures also should reflect logically related facets, i.e., that are high on correspondence. For example, satisfaction with coworkers is more likely to show a strong relationship to performance in relating to coworkers, the facet of performance that corresponds to the satisfaction measure, than to some other facet of performance less correspondent with the satisfaction measure (e.g., performance in dealing with customers).

Correlation of Performance with Responses to Satisfaction Measures			
Satisfaction Measure	All Participants	Appropriately Reinforced Participants	Inappropriately Reinforced Participants
General affective tone	-.03	.55***	-.51***
General arousal	.02	.42**	-.26
Personal competence	.13	.48**	-.16
General satisfaction with pay	.03	.67***	-.56***
Equity of pay	-.09	.45**	-.51***
Adequacy of pay	-.03	.59***	-.57***
Attractiveness of fellow workers.	.20	.44**	.04
Attractiveness of task.	-.06	.32*	-.16
*p<.05; **p<.01; ***p<.001			

Table 5.6: Correlations between Responses to Satisfaction Measures and Performance with and without Performance Contingent Rewards

Is there a causal relation between job satisfaction and job performance? The small, positive correlation between job satisfaction and job performance could reflect a relation in which satisfaction causes performance. Also possible is a reversed causality (i.e., performance causes satisfaction) or a reciprocal relation (i.e., satisfaction causes performance AND performance causes satisfaction). There are also situations in which the correlation between satisfaction and performance are the result of a third variable rather than a direct causal connection between satisfaction and performance. For instance, ability could constitute a third variable that causes both satisfaction and performance and accounts for the correlation between them. Another potential third variable is employee tenure (i.e., number of years in the job). Longer tenure employees might cause higher performance as the result of tenure leading to superior training and experience. Longer tenure employees might also cause higher satisfaction as employees adjust to the job, their coworkers, and supervisors. A positive correlation between performance and satisfaction in this case might reflect these two causal relationships rather than a causal relationship between satisfaction and performance.

Locke and his colleagues (Locke, 1970; Locke & Latham, 1990) proposed the High Performance Cycle model to describe the possible linkages between satisfaction and performance (see figure 5.12). This model uses the motivational framework of goal-setting theory and predicts that high goals and high success expectations lead to high performance. High performance, in turn, produces rewards, satisfaction, and commitment to future goals. If the rewards for performance are appropriate and contingent on high performance, it follows that employees are satisfied with their work and anticipate future satisfaction. The most direct and immediate effect of job satisfaction is to increase commitment to the organization and its goals. Organizational and goal commitment then lead to the setting of specific, difficult personal goals, which for all the reasons discussed in the motivation chapter, lead to high performance. As discussed in the previous chapter,

there are factors that moderate the effect of specific, difficult goals including feedback ability, task complexity, situational constraints, and the degree of commitment of the person to personal goals.

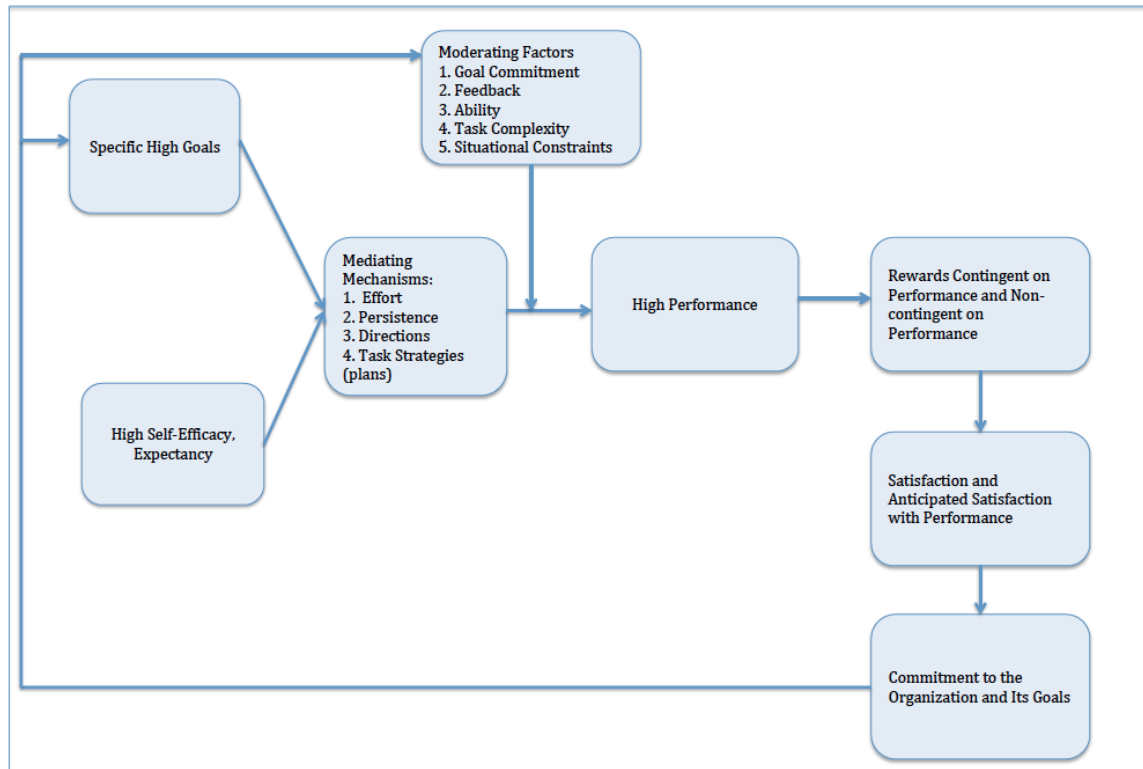


Figure 5.12: Locke and Latham's High Performance Cycle Model

Relation of job satisfaction with life satisfaction and well-being. Since the early days of research on job satisfaction, behavioral scientists have been fascinated with the relation between job and life (nonwork) satisfaction (Weitz, 1952; Dubin, 1956). There are three potential models of job and life satisfaction: a spillover model, in which satisfaction in one area influences the other; a compensatory model, in which a lack of satisfaction in one area is compensated by the other; and a segmentation model, in which satisfaction in one area is independent of the other (Kabanoff, 1980). For example, if a person is dissatisfied with her job, she may also express dissatisfaction with other facets of her life (e.g., family, friends) (spillover model); she may turn to other areas of life for fulfillment (compensatory model); or she may or may not express dissatisfaction with other facets of her life (segmentation model). In a meta-analysis of the research on the relation between job and life satisfaction and general happiness, the investigators reported on the basis of 53 studies and over 29,000 respondents that job satisfaction was positively related to life satisfaction ( $r = .40$ ) and happiness ( $r = .36$ ) (Bowling, Eschman & Wang, 2010). The correlation between career satisfaction and life satisfaction is also positive and high, with a meta-analysis of nine studies showing an  $r = .43$  (Erdogan, Bauer, Truxillo & Mansfield, 2012). Bowling, Eschman and Wang (2010) concluded from their analyses that there is more support for a spillover model in which satisfaction in one domain



affects satisfaction in the others than for either the compensatory or segmentation models. Higher satisfaction with work spills over into one's life outside of work and leads to higher satisfaction with these other domains. Likewise, higher satisfaction with life outside work spills over into higher satisfaction with work.

Sex of the employee appears to moderate the correlation between job satisfaction and life satisfaction (Tait, Padgett & Baldwin, 1989). Interestingly, the relation between life and work satisfaction is stronger for men than for women before 1974. After 1974, the job-life correlation increases sharply for women, so that few male-female differences currently exist. One possible explanation for why the differences in job satisfaction between the sexes have diminished is that both job and life opportunities (and attitudes) for women are now more similar to those of men. Another moderator is the status of the job. There is evidence that in lower level, nonprofessional jobs, the correlation between job satisfaction and life satisfaction is lower ( $r = .19$ ; Susskind, Borchgrevink, Kacmar & Brymer, 2000) than in higher level, professional jobs such as college professors, physicians, and self-employed. Indeed, the correlations are often in excess of .60 in higher level jobs (Cunningham & De LaRosa, 2008; Near & Sorcinelli, 1986; Sorcinelli & Near, 1989; Judge, et al, 1998; Thompson, Kopelman & Shriesheim, 1998). The higher correlations between job and life satisfaction probably reflect the higher levels of involvement of professionals and the centrality of work to self-esteem (Steiner & Truxillo, 1989).

As the career opportunities for women have increased, one might ask how this has affected the well-being of their spouses. The research so far is with heterosexual couples and the findings show that wives who are employed show better mental health than wives who are not employed. However, at least one study also found a negative association of wives' employment and the mental health of their husbands in which the working wife's mental health benefitted but the mental health of the husband suffered as a consequence of having a working wife (Staines, Pottick & Fudge, 1986). The authors of this study suggest that husbands of working wives perceive themselves as less adequate providers than did husbands of wives who did not have outside employment, thus accounting for the husbands' lower levels of both job and life satisfaction and presumably their lower mental health. These findings are troublesome but may be outdated. Having a working wife today is the norm rather than the novelty that it was fifty years ago. Also, a question that has not received attention in the research is how the work and life satisfaction of each partner in a marriage affects the work and life satisfaction of the other. Perhaps it is the quality of an individual's work life rather than whether the person works or not that affects the well-being of the spouse or partner. These and other questions deserve much more attention than they have received so far in the research.

The relation of satisfaction to withdrawal behaviors. Withdrawal behavior is defined as any type of behavior that removes the worker from the work setting regardless of the circumstance provoking the behavior. Employees can withdraw by actually leaving their jobs for another (i.e., they turnover). Short of actually quitting, they may instead be absent or late for work.

1. Absenteeism and attendance. Absenteeism is costly both because of the direct cost of having to pay the absent employee his or her wage but also because of indirect costs associated with the absence of paying replacement workers, lost productivity, stress among workers picking up the slack, reduced morale, and lowered quality. A study conducted by Mercer Consulting estimated that unplanned absences, the type of absences that employers seek to reduce, constitute a cost of about 8.7 percent of the payroll (Kronos, *How employee absenteeism hurts your bottom line*, [http://www.kronos.com/ads/absence/38/Kronos\\_absence\\_out\\_sick.pdf](http://www.kronos.com/ads/absence/38/Kronos_absence_out_sick.pdf)).

In a hypothetical company of 1000 employees paid an average annual wage of \$43,000 with a total payroll of \$4,300,000, the cost of unplanned absences is \$2,494,000. A published peer review study estimated the cost of employee absenteeism at 15% of payroll (Navarro & Bass, 2006). Multiplied across the economy, the cost of absenteeism easily runs into the many billions of dollars annually.

One potential source of absenteeism is employee dissatisfaction. The hypothesis that dissatisfaction leads to absenteeism is intuitively obvious, but empirical research has not supported a strong link between the two variables (Breugh, 1981; Hackett, 1989; Nicholson, Brown, & Chadwick-Jones, 1976). Hackett (1989) found in his meta-analysis that the corrected correlation between overall job satisfaction and frequency of absenteeism was a mere -.09. The findings of some research suggest that nonattitudinal variables, such as a worker's previous history of absenteeism are better predictors of absenteeism than satisfaction (Ivancevich, 1985).

One problem in the research on satisfaction as a predictor of attendance is the inability to distinguish between voluntary and involuntary absenteeism. One would expect that job satisfaction is more strongly related to voluntary absenteeism than involuntary absenteeism (e.g., failure to show for work because of illness, accidents, or other unavoidable events). The low correlations found between job satisfaction and attendance behavior is probably due in some part lumping together of both types of behavior.

Also, the decision to show up at work on time is more complex than simply a matter of how satisfied the employee is with his or her job. Chadwick-Jones, Nicholson, and Brown (1982) attempted to capture this complexity in a model of employee attendance in which absenteeism was depicted as a consequence of social exchange processes. The Chadwick-Jones et al. model assumes that an exchange relationship exists between the organization (employer or supervisor) and the employee. This social exchange is influenced by group norms and expectations. In any organization, the employee soon discovers how much absenteeism is tolerated and the price that he or she will pay for absenteeism. For example, an employee may learn that one or two unexcused absences per month are tolerated if he is willing to work overtime and weekends when needed.

2. Turnover. As in the case of absenteeism and performance, the correlation of work-related attitudes including job satisfaction with turnover is small. The corrected correlation between job satisfaction and turnover revealed in meta-analyses of the research is only -.14 (Tett & Meyer, 1993).

Again, the low correlations found between job satisfaction and turnover probably are due in part to the failure to distinguish between voluntary turnover and involuntary turnover. A higher correlation seems likely if the employee can freely choose whether they stay or go. This possibility was examined in a survey of 75,000 massage therapists that examined the relation between job satisfaction and voluntary and involuntary intent to leave the occupation (Blau, et al, 2009). A correlation of  $-.45$  was found between job satisfaction and voluntary intent to turnover, a relationship that is much higher than typically found. Authors of another study examined the relation to turnover of HRM practices likely to enhance and detract from job satisfaction (Shaw, Delery, Jenkins & Gupta, 1998). The researchers surveyed the rate of turnover among truck drivers in 227 trucking firms and distinguished between voluntary turnover in the form of quit rates among drivers and involuntary turnover in the form of dismissal of drivers. To the extent that HRM directors in these firms reported adherence to practices that were procedurally just and reported higher pay benefits, there was a lower voluntary turnover. To the extent that the directors reported electronic monitoring of drivers and higher required time on the road, both of which are viewed as potential sources of dissatisfaction, there was higher voluntary turnover. Involuntary turnover was related to a different set of predictors. In particular, the use of valid selection procedures in the hiring of drivers, combined with a low selection ratio (i.e., there are few positions to fill and a high number of applicants for these positions), was associated with a low involuntary turnover rate in the form of dismissal.

Another likely reason that job satisfaction and turnover is so low is that the process by which satisfaction leads to turnover is complex and involves a variety of mediator and moderator variables. Considerable research on job satisfaction and turnover has found that dissatisfied workers are prone to quit their jobs, but this relationship is both indirect and complex. One complication is that turnover is a process that unfolds over time and the relation to satisfaction is mediated by a complex set of events. Mobley and his colleagues (Mobley, 1977; Mobley, Horner, & Hollingsworth, 1978) developed a model of the turnover process that attempts to explain the indirect and complex link between satisfaction and turnover (see figure 5.13).

According to the model, dissatisfaction with the job triggers thoughts of quitting and a search for another job. If the search process reveals favorable and available alternatives, the employee develops an intention to quit, which directly predicts quitting (a type of turnover). However, if the search process reveals unfavorable and/or no available alternatives, the employee develops instead an intention to stay on the job, which directly predicts staying. In a test of the models' validity, researchers collected data on job satisfaction, thinking of quitting, intention to search, intention to quit and turnover 47 weeks later with 200 hospital employees (Mobley, Horner, and Hollingsworth (1978). The results were supportive of the model: Job satisfaction was more highly related to thinking of quitting and intention to search than to actual turnover. However, intention to quit or stay was significantly related to actual turnover.

Turnover is costly insofar as the employer must replace those who leave and train the replacements, and the remaining employees must pick up the slack created by those who leave. But is turnover always bad in the long run for the effectiveness of the organization? Not necessarily. One study of retail sales employees found that over half of the salespeople who left were rated by their supervisors as marginal or unsatisfactory in their performance (Hollenbeck & Williams, 1986). The researchers concluded from these findings that half of the turnover was functional. An organization can benefit from functional turnover when the poorer performing employees leave and more capable employees are found to replace them.

Another factor complicating the relationship between satisfaction and turnover is the external labor market. Because of the personal risks involved in quitting one's job (such as not being able to meet financial obligations), turnover, more than absenteeism, is affected by the availability of alternative jobs. Turnover is higher in good economic times, when many jobs are available, than in poorer economic times, when fewer jobs are available (Carsten & Spector, 1987). As a consequence, the correlation between job satisfaction and turnover is likely to be stronger during economic prosperity than during economic adversity. Because workers cannot freely leave the organization during periods of economic adversity, the turnover rate is not a good indicator of workers' true feelings about whether they would prefer to leave or stay. The author of this text observed a public sector organization that made this incorrect assumption, almost costing the organization its most valued employees. Management assumed, because the agency's turnover rate had dropped considerably, that pending employee development programs were unnecessary. Fortunately, data about current market conditions and current employee attitude statistics in the agency convinced management that employees were still disgruntled and would leave as soon as jobs outside the agency became available. The employee development programs then proceeded as originally scheduled. In this case, management incorrectly assumed that employees were satisfied when, in fact, dissatisfaction was rampant but few employees were leaving because of the lack of alternative jobs.

A third complicating factor is the extent to which individuals are embedded in relationships within the organization. Individuals who are highly embedded in their jobs and organizations are tightly connected to social situations that keep them in their jobs and organizations (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). Job embeddedness increases with the number of close social relationships, the fit of individual values and goals to the goals and values of the organization, and the degree of sacrifice that would be required if the individual left the organization. Embeddedness can originate from links, fit, and sacrifice associated with nonwork as well as work situations.

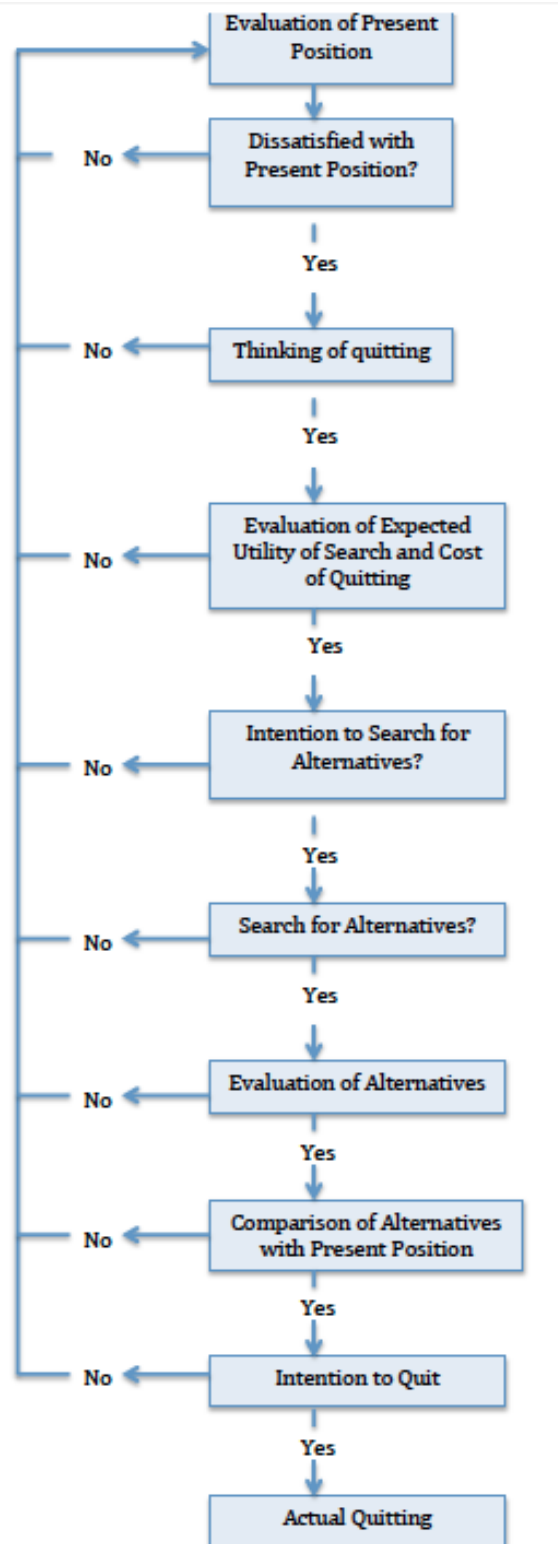


Figure 5.13: Mobley's Intermediate Linkage Model of Turnover.

An employee who is unhappy with his job and has few relationships that bind him to the organization, might still stick with the organization because of close ties to family,

friends, and the community. The research has generally supported the importance of embeddedness. In a meta-analysis involving over 40 samples and over 30,000 employees, on-the-job embeddedness and off-the-job embeddedness were predictive of turnover (Jiang, Liu, McKay, Lee & Mitchell, 2012). On-the-job embeddedness had an uncorrected correlation of  $-.15$  ( $p < .05$ ) and a corrected correlation of  $-.19$  with turnover. Off-the-job embeddedness had an uncorrected correlation of  $-.10$  ( $p < .05$ ) and a corrected correlation of  $-.12$  with turnover. There was also evidence that intentions to turnover mediate the relation of embeddedness to turnover. The less embedded an individual, the stronger their intention to leave. Intentions, in turn, lead to lower job performance and a search for alternative jobs. In the final link in the model, lower performance and search behavior lead to actual turnover.

3. Interrelationships among absenteeism, lateness, and turnover. This discussion has lumped absenteeism, lateness, and turnover together under the rubric of withdrawal behavior. This leads to the question of whether these behaviors are, in fact, interrelated. Apparently they are not highly interrelated. In one meta-analysis, the researchers report that the corrected correlations were only  $.26$  between lateness and absenteeism and  $.25$  between absenteeism and turnover (Berry, Lelchook & Clark, 2012). The corrected correlation between lateness and turnover was a mere  $.01$ .

The relation of job satisfaction and organizational citizenship behavior (OCB). In any organization or group some people are cooperative, while others only do the minimum in their dealings with their fellow employees. Some employees not only cooperate but generally go out of their way to contribute to the group and the organization even when it is not required in their job descriptions. The latter type of behavior has gone by a variety of labels, including organizational citizenship (Organ, 1988), prosocial behavior (Brief & Motowidlo, 1986), and extrarole behavior (Katz & Kahn, 1978). There are small differences in the definitions of these concepts, but they are all concerned with individuals going beyond what is required in their jobs and attempting to contribute to the organization. This chapter uses the term organizational citizenship behavior (OCB), and defines it as behavior that employees perform with the intention of benefitting the organization or individuals. Additionally, employees perceive OCBs as behaviors that they are not required to perform and do not expect personal gains when they do. Among the behaviors that illustrate OCBs are assisting coworkers with job-related and personal matters, helping customers, and representing the organization favorably to outsiders (Brief & Motowidlo, 1986).

Given that organizations are only effective to the extent that employees are willing to collaborate, how can an organization cultivate OCBs? The high correlation between job satisfaction and OCBs suggests that the best strategy is to create a satisfying work environment. OCBs appear less likely to emerge in a high-stress environment than in a low-stress environment. Leaders who are considerate and employee oriented are more likely to encourage such behavior among subordinates than inconsiderate taskmasters. Also, the warm and friendly atmosphere that exists in some organizations encourages OCBs, whereas the cold, punitive atmosphere of other organizations discourages such behavior. Researchers in one study found that salespersons were more likely to show

OCBs in the form of prosocial behavior when they felt secure in their work situation and trusted management (Puffer, 1987).

Points to ponder:

1. Describe the potential outcomes of job satisfaction. Describe how these “outcomes” could act as causes of satisfaction rather than vice versa.
2. What are the variables moderating the relationship between satisfaction and performance?
3. Although there is a small positive correlation between satisfaction and performance, dissatisfaction can lead to high performance and satisfaction to low performance in some circumstances. Describe and illustrate how this might occur.
4. In what ways can higher turnover benefit an organization?
5. One should not assume based on turnover and absenteeism that employees are satisfied or dissatisfied with their jobs. Why not?

### Job Involvement

So far the discussion has focused on one work-related attitude, job satisfaction. Another work-related attitude that has received attention by I/O psychologists is job involvement, which is defined as the extent to which a person psychologically identifies with his or her job (Kanungo, 1982; Lodahl & Kejner, 1965; Rabinowitz & Hall, 1977). Jobs occupy a central role in job-involved people's lives. There are benefits and costs of high job-involvement. On the positive side, high job-involvement leads to higher levels of effort. One can identify highly job-involved workers as the people who work overtime to finish a project and take pride in their job-related accomplishments or products. On the negative side, any change in employment conditions or status can seriously affect their psychological well-being or self-esteem. When these people are unable to perform their jobs, for example, because of illness, layoffs, or retirement, they may become discontented or depressed.

### Measurement of job involvement

The most widely used measure of job involvement is a 20-item scale developed by Lodahl and Kejner (1965) (see table 5.7). They administered the 20 items to researchers (Cook et al., 1981) reported that the scale (both the full 20 items and shorter versions) possesses acceptable reliability and validity.

Researchers also found that the involvement scale is multidimensional, although they have not systematically attempted to investigate the different dimensions. Probably because the overall measurement qualities of the total involvement scale are adequate, little interest has been generated to explore these different dimensions conceptually. As a result, more than 25 years later researchers are still not certain exactly what Lodahl and Kejner's 20-item scale measures. In their review of the job involvement literature, Rabinowitz and Hall (1977) concluded that some of the scale items measure a stable value orientation and some measure situational or specific job factors.

The implied differences between the value orientation items and the situational items in the job involvement scale also present problems in providing feedback to organizations about the job involvement of their employees. If the value orientation items are more important in defining job involvement, then organizations could do little to change employee job involvement. The most practical approach, in this case, is to select workers who initially express high levels of job involvement. If, however, the situation is the more important determinant of job involvement, organizations should consider increasing employee involvement through various organizational change strategies. The empirical research tends to support both the value orientation and situational perspectives (Noe & Schmitt, 1986; Noe & Steffy, 1987).

ITEMS	
<b>DIRECTIONS:</b>	
1. Read each item carefully.	
2. Respond to each item according to the way you feel about your job.	
3. Refer to the choices below when making these judgments.	
1 = strongly agree	
2 = agree	
3 = disagree	
4 = strongly disagree	
4. Mark your answer (number) in the blank to the right of the item.	
The major satisfaction in my life comes from my job.	—
The most important things that happen to me involve my work.	—
I feel depressed when I fail at something connected with my job.	—
Sometimes I'd like to kick myself for the mistakes I make in my work.	—

Table 5.7: Sample Items for Lodahl & Kejner Job Involvement Scale

### Correlates of job involvement

The variables related to job involvement are generally similar in direction and magnitude to those found for job satisfaction (Cook et al., 1981; Brooke, Russell, & Price, 1988). Job involvement shows a small positive relationship to job performance. Older workers report higher levels of job involvement than younger workers across many types of workers and cultures (Morrow & McElroy, 1987; Rhodes, 1983). No sex differences are apparent in job involvement: Women report similar levels of job involvement to men (Chusmir, 1982; Rabinowitz & Hall, 1977). The behavioral correlates of absenteeism and turnover are also associated with job involvement; highly job-involved workers are less apt to be absent from work or quit their jobs (Brooke, 1986).



Points to ponder:

1. Is it healthy to base one's self-esteem on one's work? Why or why not?
2. Is your self-esteem based mostly on your work? If not, what are the sources of your self-esteem?
3. Consider the jobs you have held. In which of these was your job-involvement high? In which of them was your job involvement low? Why did you possess the level of job-involvement that you possessed?
4. Do you think employers should attempt to increase job-involvement so that employees base their self-esteem on how well they perform?

### Organizational Commitment

Another work-related attitude that has received increasing attention is organizational commitment, which is defined as a workers' identification with and attachment to a particular organization. Like the highly job-involved individual, the highly committed worker takes his or her work seriously. However, the allegiances of the highly committed worker reside with the organization, not the job or work.

#### Three components of organizational commitment

Organizational commitment embodies three concepts: readiness to exert effort on behalf of the organization, acceptance of organizational goals and values, and desire to remain with the organization (Cook et al., 1981). Although, similar to job satisfaction, organizational commitment is a more global and enduring employee attitudes about the whole organization and therefore is probably less influenced by daily events (e.g., a disagreement with the supervisor).

Researchers have proposed and investigated different dimensions of organizational commitment. One dimension is affective commitment, which is an emotional attachment to and involvement and identification with the organization. A second dimension is behavioral and is called continuance commitment. This dimension refers to the perceived costs associated with leaving the organization, such as giving up pension plans and profit sharing (Becker, 1960; Hrebiniak & Alutto, 1972). A third dimension is normative commitment, which is a felt obligation on the part of the employee to stay with the organization. The items associated with the three commitment dimensions are summarized in table 5.8.

Recent research has empirically supported theoretical distinctions between the three types of commitment (Allen & Meyer, 1990; McGee & Ford, 1987; Meyer, Paunonen, Gellatly, Goffin, & Jackson, 1989). In the Meyer et al (1989) study, affective commitment correlated positively with job performance and continuance commitment correlated negatively with job performance in a sample of first-level managers in a food service company. Specifically, high emotional attachment to the organization was associated with high performance, whereas high behavioral attachment (attachment only for extrinsic benefits) was associated with low performance.

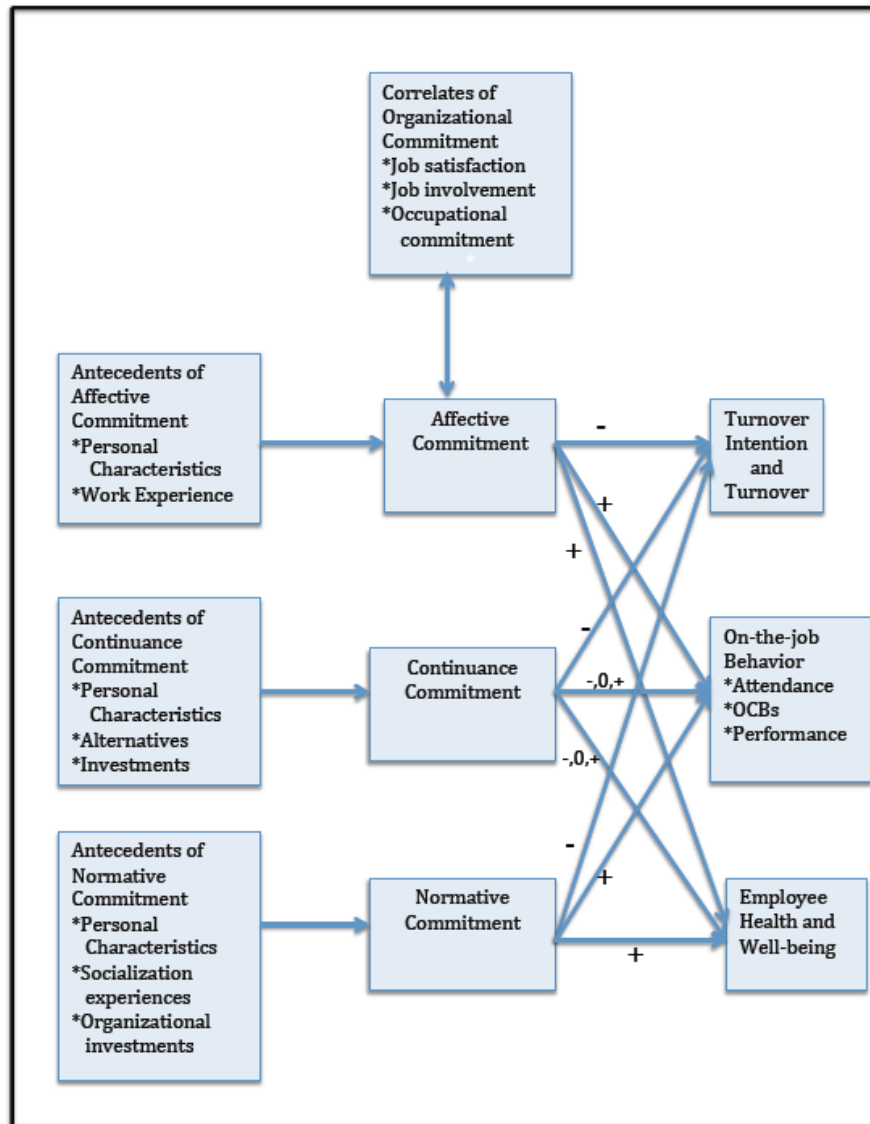
<p>Affective Commitment</p> <p>I would be very happy to spend the rest of my career in this organization.</p> <p>I really feel as if this organization's problems are my own.</p> <p>This organization has a great deal of personal meaning for me.</p> <p>Continuance Commitment</p> <p>It would be very hard for me to leave my organization right now, even if I wanted to.</p> <p>Right now, staying with my organization is a matter of necessity as much as desire.</p> <p>I feel that I have too few options to consider leaving this organization.</p> <p>Normative Commitment</p> <p>One of the major reasons I continue to work for this organization is that I believe that loyalty is important and therefore feel a sense of moral obligation to remain.</p> <p>If I got another offer for a better job elsewhere I would not feel it was right to leave my organization.</p> <p>Things were better in the days when people stayed with one organization for most of their careers.</p>
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Table 5.8: Sample Items from the Allen and Meyer Organizational Commitment Questionnaire

### Correlates of organizational commitment

The correlates of organizational commitment depend on which component of organizational commitment that is measured (Brooke et al, 1988; Cook et al., 1981). Figure 5.14 summarizes the research findings on the antecedents, correlates, and consequences of affective, continuance, and normative commitment to the organization.

The associations found for affective commitment are particularly noteworthy: Individuals with high affective commitment are less likely to be absent from or quit their jobs compared with their less committed coworkers (e.g., Williams & Hazer, 1986; Farkas & Tetrick, 1989). They are also likely to show higher levels of performance, well-being, health, and organizational citizenship behavior. Continuance commitment is negatively related to turnover but shows mixed findings for other outcomes. Normative commitment related to the outcomes in a direction similar to affective commitment but much less research has been conducted for this component of commitment than for affective commitment. Romzek (1989) found that those individuals who reported higher levels of organizational commitment also reported higher nonwork and career satisfaction two years later.



*+, 0, and – indicate respectively a positive, zero, and negative relationship between the variables.*

Figure 5.14: Three-Component Model of Organizational Commitment.

An issue that remains unexplored is the possibility that there is a downside to overcommitment. Over 50 years ago, Whyte (1956) warned about this danger in his book *The Organization Man*. Whyte claimed that the "organization man" identified so totally with his work group or organization that he substituted the organization's goals and beliefs for his own. In essence, according to Whyte, the overcommitted worker submerged his own identity for the good of the organization. The potential damaging effects on well-being, ethics, and creativity are easy to imagine. Subsequently, researchers have echoed Whyte's concerns (Mowday, Porter, & Steers, 1982; Randall, 1987). Despite the potential problems associated with too much commitment, researchers tend to view commitment as an unmitigated good, particularly for the

organization (e.g., Lawrence, 1958; Ouchi & Wilkins, 1985). Future research on commitment will perhaps examine the limits of employee commitment.

### Commitment as an exchange process

An interesting theoretical view of organizational commitment, like the Chadwick-Jones approach to absenteeism, treats commitment as a social exchange process. Specifically, workers become more committed to their employing organization if they perceive that the organization values their contributions and cares about their well-being. Eisenberger, Huntington, Hutchison, and Sowa (1986) provide support for this exchange process and conclude that "employees' commitment to the organization is strongly influenced by their perception of the organization's commitment to them" (p 500).

Over the last several decades some observers suggest that the management of organizations has changed the psychological contract that employees have with employers. No longer can employees count on employment for life in an organization but can look forward to a career of layoffs, reorganizations, acquisitions, and other disruptions. This violation of psychological contract poses a threat to productivity and innovation. As Kanter (1989) notes, "If people are encouraged to rely on themselves, then how can the corporation rely on them? A response is urgently required. The 'contract' between corporations and their people must be rewritten to provide new forms of security that, in turn, engender a new, more powerful kind of loyalty." This could have the effect of inducing an "every person for himself" attitude and lower affective commitment to the organization and possibly normative commitment to the extent that people feel less obligated to stick with the organization in the interest of doing right by employer and peers. If organizations can no longer depend on an organization

### Points to ponder:

1. Can workers be too committed to an organization? Why or why not?
2. What types of things can management do to increase affective, normative, and continuance commitment?
3. The level of commitment that a person shows to an organization is an outcome of an exchange process between the person and the organization. Explain what this statement means.
4. Considering the frequency with which organizations have used layoffs to cut costs, does it make sense to increase employee commitment to the organization? Why or why not?
5. What level of commitment on each of the three dimensions of commitment do you have toward your university or current job? Why do you think you have this level of commitment on each dimension and what effect does it have on how you perform and behave in your role as a student or employee?

### Satisfaction, Involvement and Commitment: Same or Different Constructs?

After reading about job satisfaction, job involvement, and organizational commitment, the reader is probably convinced that they are, both conceptually and empirically, more similar than dissimilar. If so, the reader is questioning an important aspect of the construct validity of these measures. Researchers have echoed these concerns over the relative independence of job attitudes and investigated their discriminant validity (see the research methods chapter for a discussion of discriminant validation). The correlations among job satisfaction, job involvement, and organizational commitment reported in numerous studies average approximately 0.50 (Brooke et al., 1988). The patterns of relations between these three job attitudes and other job-related variables, such as absenteeism and turnover, are highly similar. This raises a question of discriminant validity, i.e., are these really separate and distinct types of work-related attitudes? The research generally supports the discriminant validity of job satisfaction, job involvement, and organizational commitment (Brooke, Russell, & Price, 1988; Mathieu & Farr, 1991). Employees do appear to distinguish among their liking for their jobs (job satisfaction), their emotional attachment to their jobs (job involvement), and their loyalty to their employing organization (organizational commitment).

The evidence that supports treating the three work-related attitudes as separate and distinct constructs raises the possibility that they may interact in interesting ways in predicting employee behavior. Blau and Boal (1987) hypothesize that commitment and job involvement interact in predicting worker turnover and absenteeism. Workers high on job involvement and low on organizational commitment ("lone wolves") do not identify with the organization, although work is important to them. These individuals never really integrate themselves into the organization and may quit their jobs with little provocation if better opportunities arise. Absenteeism for the lone wolves may reflect their career-enhancing behaviors, such as looking for a better job. In contrast, corporate citizens are those individuals who are low on job involvement and high on organizational commitment. They identify strongly with the organization, although the work itself is not especially important to them. To the extent that some absence is tolerated by the organization, they will take advantage of sanctioned absences because they are not very involved in their work. However, corporate citizens, being very organizationally committed, will probably not voluntarily quit their jobs. The support for this theory is mixed with some researchers finding an interaction of commitment and involvement (Blau, 1986; Blau & Boal, 1987; Mathieu & Kohler, 1990) and other researchers finding no support for the interaction (Huselid & Day, 1991).

### Employee Engagement: An Aggregate Attitudinal Construct

The research shows that job satisfaction, job involvement and organizational commitment are independent constructs that have associations with a variety of job-related criteria, such as absenteeism and turnover. In recent years, an approach has emerged that combines these work-related attitudes as well as several of the motivational constructs discussed in the last chapter under the rubric of employee engagement. Employee engagement is an aggregate construct that reflects a deep behavioral, emotional, and cognitive involvement of employees in their work. In the original presentation of this construct, Kahn (1990) defined engagement as the "simultaneous employment and

expression of a person's 'preferred self' in task behaviors that promote connections to work and to others, personal presence (physical, cognitive, and emotional), and active, full role performances (p. 700)." Building on these notions, Macey and Schneider (2008) propose that employee engagement consists of state, trait, and behavioral engagement. State engagement consists of feelings of energy and absorption in one's work and are associated with job satisfaction, job involvement, and organizational commitment. Trait engagement consists of personality traits that engender positive views of life and work. These include proactive personality, an intrinsic orientation in which people work for the work itself rather than extrinsic reasons, positive affectivity, and conscientiousness. The third component is behavioral engagement consisting of organizational citizenship behavior, proactivity and initiative, attempts to expand the work role and adaptiveness. State engagement emerges when people with trait engagement experience work having high variety, challenge, and autonomy and transformational leadership. When there is trust, state engagement then leads to behavioral engagement. At the core of many notions of employee engagement is the degree to which the work implicates the self and is important to the employee's self-esteem. According to Macey and Schneider's (2008a, p. 13) "State engagement additionally refers to the investment of the self in the person's work and the perceived importance of work outcomes and organizational membership to that person's identity."

Measures of state engagement consist of questions about job satisfaction, organizational commitment, and job involvement, and self-perceptions of vigor in job performance. As an example, the reader should examine the State Work Engagement scale described in chapter 3 (Breevaart, Bakker, Demerouti & Hetland, 2011). Another commonly used scale is the Utrecht Work Engagement Scale (Schaufeli, Salanova, Gonzalez-Roma & Bakker, 2002). The research shows that measures of engagement are generally positively related to positive outcomes. Harter, Schmidt, and Hayes (2002) conducted a meta-analysis of the relation of self-reported employee engagement and organization level outcomes. In this case the measure of work engagement was constructed from items in Gallup survey instruments. In a second meta-analysis, Christian, Garza & Slaughter (2011) examined studies reporting correlations between measures of worker engagement and performance at the individual level. The results are summarized in table 5.9. Higher levels of worker engagement are related to higher performance at both levels of analysis.

As in the case of other aggregate constructs such as emotional intelligence and core self-evaluations, there are criticisms of the employee engagement construct (Saks & Gruman, 2014). There is disagreement among those using employee engagement on what it is, what to call it, and how to measure it. The measures of worker engagement currently in use remain to be thoroughly evaluated to assess whether they are measuring something distinct from engagement or whether they are redundant with job satisfaction, organizational commitment, and job involvement. Also, there is no unifying theory that specifies the relation of worker engagement to its component constructs to the antecedents and consequences of engagement.

Variable	k	N	r <sub>uc</sub>	r <sub>c</sub>	Study
Customer satisfaction/loyalty <sup>a</sup>	20	3,199	.16*	.33	Harter et al (2002)
Company profits <sup>a</sup>	23	2,856	.10*	.17	Harter et al (2002)
Company productivity <sup>a</sup>	21	2,144	.15*	.25	Harter et al (2002)
Company turnover <sup>a</sup>	19	6,506	-.13*	-.30	Harter et al (2002)
Job performance <sup>b</sup>	14	4,562	.36*	.43	Christian et al (2011)
Contextual performance <sup>b</sup>	10	3,654	.26*	.34	Christian et al (2011)

*a = correlations were computed at the level of the business unit; b = correlations were computed at the level of the individual employee; K = number of correlations; N = number of business units or employees; r<sub>uc</sub> = mean correlation weighted by sample size; r<sub>c</sub> = corrected correlation; \* = confidence interval for correlation excluded zero.*

Table 5.9: Results of Meta-Analyses of Correlations Between Employee Engagement and Performance.

## Conclusions

The topic of work-related attitudes is closely related to that of work motivation. As seen in this chapter, three primary attitudes are the focus of the attention of I/O psychologists. Job satisfaction is the work-related attitude that is the oldest and most widely researched job attitude. The typical job satisfaction scale is self-report, and the three most commonly used self-report measures are the Faces Scale, the Minnesota Satisfaction Questionnaire, and the Job Descriptive index. These measures have been used in thousands of studies across many different types of settings and samples. The other two work-related attitudes discussed in this chapter were job involvement and commitment. All three of these attitudes are positively related to performance, health, turnover, and absence. Although the relations with outcomes are similar, the research also shows that job satisfaction, job involvement, and organizational commitment are distinct psychological constructs and that researchers should treat them as different concepts rather than as one overall attitude. In recent years, worker engagement has been proposed as a composite construct that combines multiple work-related attitudes as well as motivational constructs. The jury is out on whether this composite construct offers advantages over more traditional work-related attitudes.

As seen in this chapter, employers can increase all three attitudes by designing the work situation so that employees have control, a meaningful beginning and end to tasks, and variety. Employers should provide work with these characteristics because it is the right thing to do. Apart from any potential outcomes, people deserve to have work that is a source of satisfaction, involvement, and commitment. Another reason is that all three

attitudes are associated with outcomes that organizations seek to obtain, i.e., higher productivity, low turnover, low absenteeism, health, etc. The causal relationship is complex. One cannot simply say that any of these three is a simple, direct cause of the other. More likely, there is a reciprocal relationship in which positive work-related attitudes cause positive outcomes and these outcomes in turn cause even stronger positive attitudes. Despite the complexity of the relations, employers are well advised to instill more positive attitudes by improving the quality of worklife for employees. Not only is the creation of a more satisfying work environment associated with positive outcomes, but also perhaps more importantly, it is the ethical course of action.



## CHAPTER 6: WORK STRESS



## Introduction

Is work becoming more stressful? Media reports would suggest that work-related stress is not only increasing but it is of epidemic proportions. Consider some of these stories:

1. Factories in China manufacturing Apple iPads and iPhones required workers to sign pledges that they will not commit suicides. Also netting was put up outside worker dormitories to prevent death from jumping. This was after at least 14 workers killed themselves. The suicides appeared to result from stress of excessive overtime, public humiliation by supervisors, prohibitions against talking, and requirement to remain standing for over 12 hours in some jobs. Workers in some jobs were housed in crowded rooms, made to work 60 – 80 hour of overtime per month, and prohibited from leaving to see their families more than once a year. A worker was cited as stating that 'Sometimes my roommates cry when they arrive in the dormitory after a long day:  
(<http://www.dailymail.co.uk/news/article-1382396/Workers-Chinese-Apple-factories-forced-sign-pledges-commit-suicide.html>)
2. In Birmingham, Alabama (USA), a UPS employee killed two coworkers and himself after losing his job: <http://www.latimes.com/nation/nationnow/la-na-nn-ups-shooter-alabama-20140923-story.html>
3. In northern Sweden two supervisors were found guilty of bullying that drove a co-worker to suicide. The victim was a social worker and according to his wife, “workplace bullying gave her deceased husband stomach cramps, kept him awake at night, and ultimately led him to take his own life”  
(<http://www.thelocal.se/20140219/bully-bosses-convicted-for-co-workers-suicide>).
4. Several European countries have enacted anti-stress laws and regulations. Belgium and the Netherlands now list burnout (feeling of exhaustion and hopelessness brought on by prolonged work stress) as an official health risk. Employers are required to take steps to protect workers from this risk. Corporations such as Volkswagen and Daimler have implemented policies to fight what is seen as work-related stress resulting from the use of e-mail and mobile phones. Volkswagen have come up with their own proposals to combat work-related stress. There are also moves by German government officials to make a reliable end to the working day a basic human right  
(<http://www.theguardian.com/world/2014/sep/18/germany-law-work-related-stress>)

As illustrated in these accounts, work stress is increasingly recognized as a serious problem in countries around the world. Perhaps the most serious threat is to health. Stress is implicated either directly or indirectly in such life threatening illnesses as cancer, heart disease, diabetes, cirrhosis of the liver, stomach and intestinal ulcers, arthritis, and lung disease. Among the most widely consumed prescription drugs in the country are used to treat anxiety, depression, and other symptoms of stress. The widespread acknowledgment of this "stress epidemic" has prompted many people to try jogging, meditation, diets, counseling, support groups, and even new lifestyles. This concern has spread to industry,

where business leaders have openly expressed alarm about the spiraling costs their organizations incur from stress-related absenteeism, decreased productivity, and medical expenses. Although it is difficult to estimate the true cost of work stress (see Goldin, 2004), various estimates of the cost to employers in the United States range from as high as \$300 billion to \$50 billion per year. Regardless of the exact cost, it is obvious that stress negatively affects the bottom line. It is also an ethical issue. An employer has an ethical and in some cases a legal requirement to protect worker health. In response, corporations have offered stress management workshops, "wellness" or health maintenance programs, and exercise facilities to their harried employees. Decreasing employee stress, however, requires an understanding of exactly what it is. Unfortunately, that is not such an easy task. For years, stress researchers have tried to agree on a definition of stress (Ivancevich & Matteson, 1980; Mason, 1975; Monat & Lazarus, 1985). Although we still cannot fully resolve this debate, this chapter explores what medical and behavioral scientists have discovered about stress, particularly job-related stress.

Much of the information on organizational stress that discussed in this chapter has a decidedly medical and clinical emphasis. This orientation emanates from its historical roots in medicine and clinical psychology. Very simply, people under stress experience both physical and psychological distress. The focus of much research and application, therefore, has targeted the individual, not the organization. However, the very real distress currently experienced by many organizations in the form of spiraling medical costs and absenteeism has forced stress researchers to assume a broader based perspective. This chapter is organized into three major sections. The first introduces the concept of stress. The second deals specifically with the sources and outcomes of job-related stress and the characteristics of people that make some more vulnerable than others. The last section is concerned with the management of stress, both at the individual level and organizational level of intervention.

### Myths about stress

So, what is stress? Before we offer a more precise definition of stress, we need to examine some popular misconceptions about stress (Selye, 1974).

Myth 1. You should strive to eliminate all stress in your life.  
Definitely not! Do not run that extra mile, sign up for a difficult course, or accept a tough job assignment if trying to avoid stress. The right amount of stress can make life challenging and exciting. In these instances, stress is the "spice of life".

Myth 2. Stress is just "in your head." It cannot really hurt you.  
Not true. Stress predisposes one to illness, from the common cold to cancer. This relationship is explored in detail shortly.

Myth 3. Stress is really just anxiety or nervous tension. If one simply calms down, the stress goes away.

No, anxiety or nervous tension is often a response to the experience of stress. However, stress is much more than anxiety or tension. In fact, people can exhibit a physiological

reaction to stress (for example, increased heart rate and blood pressure) while asleep or unconscious.

Myth 4. The experience of stress only implies excess, such as overstimulation or overexcitement.

Not true. Boredom or under stimulation are also stressful. Some jobs require workers to sit idle for long periods of time, waiting for some event to occur, such as enemy aircraft on a radar screen. Many of these workers report that their jobs are very stressful.



Definition of stress.

The many misconceptions about stress stem in large part from confusion about what stress is and is not. As a working definition, keep in mind three primary aspects of stress.

- Stress is the total experience to special physical and/or psychological demands on a person that exceed the resources of the person to deal with the circumstances,
- It results in unusual psychological, physiological, and/or behavioral responses.
- It can lead to long-term negative consequences for health, performance, and well-being.

### Types of Stress

- Distress
  - ◆ Stress that is experienced as pain, discomfort, and other negative affect
  - ◆ Can be beneficial in the short-run but can have long-term negative consequences
- Eustress
  - ◆ Stress that is experienced as pleasure and other positive affect
  - ◆ Can be beneficial in the short-run but can have some of the same long-term negative consequences as distress.



This definition identifies three essential elements of stress:

Stressors. The circumstances in the outside world that are the antecedents to stress and create the demands that cause the physical, psychological, and behavioral responses are called stressors. If asked to identify what causes stress in one's life, the list is likely to include events such as final exams, financial issues, an accident, the theft of a car, major surgery, chemical fumes, a bad marriage, an abusive supervisor, or work overload. The stress associated with negative events is called distress.

It's easy to see how negative events are part of stress, but what about positive events? Interestingly, more pleasant events such as getting that coveted job promotion, falling in

love, taking a European vacation, and the excitement that one's team has won also can cause stress. The challenge, excitement, and stimulation associated with positive experiences that lead to stress are often referred to as eustress. Heart attacks often occur in the midst of extreme pleasure (e.g., orgasm, winning the game) and result from exactly the same underlying physiological events that occur when negative events lead to distress. Both distress and eustress are beneficial in the short term but both can also have long-term negative consequences.

Stress responses. The unusual or out-of-ordinary response is called a stress response that can include physiological, affective, and behavioral reactions to the stressor. The outcomes of stress responses are as diverse as the stressors that provoked them. In the short term, stress responses are often necessary and useful such as when an individual experiences an increase in blood pressure, a faster heartbeat, and muscle tensing in response to an oncoming car. Short-term stress responses are vital to dealing with the threat posed by stressors. The long-term experience of stress, however, can lead to physical, affective, and behavioral harm in the form of stress responses that are termed strains. Strains come in the form of behavior (such as drug addiction or performance deficits), affect and emotion (such as depression or anxiety), and physical symptoms (such as heart disease or ulcers). Although strains can occur in the short term (e.g., a stomach ache, headache, drinking too much alcohol, feeling depressed), the focus of this chapter is on the negative consequences that culminate from the sustained experience of stress (e.g., chronic headaches, stomach ache, alcoholism, and depression). Work-related strains can include poor performance, job dissatisfaction, absenteeism, and aggression, to name only a few of the possible symptoms of work stress.

Demands relative to personal resources. An essential component of stress is that external events impose demands that are greater than the individual can handle. The perceived demands are as important as the actual demands. In dealing with the demands posed at work and outside of work the individual falls back on personal resources that include a wide variety of behavioral, social, cognitive, and affective factors. An employee faced with a difficult and complex task assignment might want to draw from the knowledge and skills he has accumulated from past work experiences, seek aid and assistance from coworkers, supervisors, and family, and mobilize cognitive and personality traits useful to performing the task (e.g., apply his reasoning abilities, high need for achievement, and emotional stability). Stress occurs when the resources that people believe that they can bring to bear fall short of the demands.

Stress as defined and studied by scientists is a complex set of antecedents, mediators, moderators, and consequences. Stressors, stress responses, and the personal characteristics of people that mediate and moderate the impact of stressors on stress responses are interrelated. This chapter reviews the research and theory related to each, but it is important to recognize that these components are not readily dissected into completely independent elements. Stress refers to the total package of outside events that trigger stress and the physiological, affective, and behavioral responses to these events, and the strains or long-term consequences.

## A Transactional Process Model of Stress

The review of the research and theory on work stress will use the transactional process model as an organizing framework (Lazarus & Folkman, 1984; Schuler, 1982, 1985). A variation on this model is presented in the figure 6.1. In this model, the worker evaluates (i.e., appraises) some environmental work stressor (for example, a difficult relationship with a coworker) as stressful. An assessment is made of whether stressor actually poses a threat and a potential harm (primary appraisal) and whether the employee has sufficient resources to cope with the appraisal (secondary appraisal). Central to the experience of work stress is the employee's evaluation of the extent to which the work environment meets his needs, whether his resources are sufficient to deal with future threats, and whether he has enough control and social support.

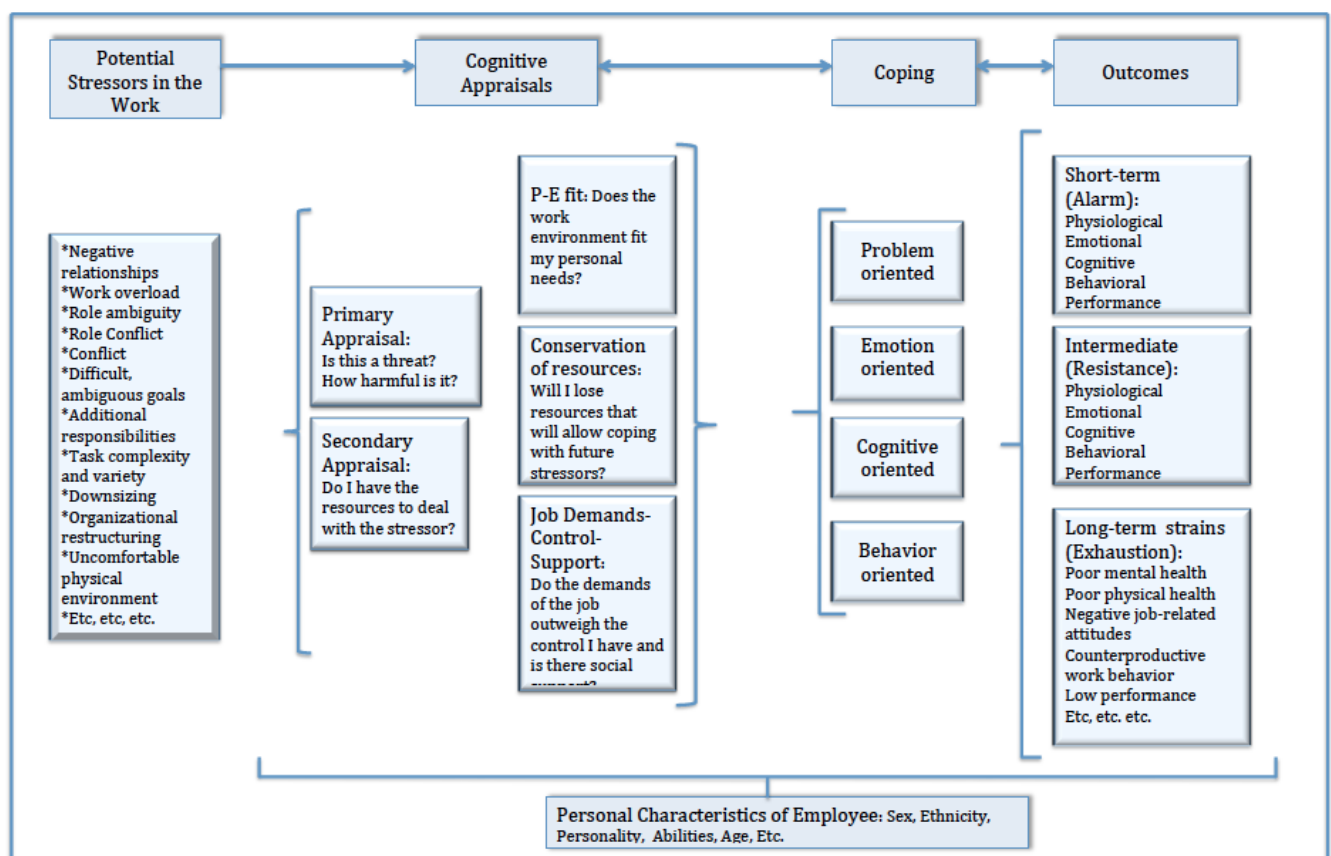


Figure 6.1: Transactional approach to work stress.

In coping with stress four general approaches are distinguishable. The individual can focus on solving the problem by dealing with the sources of the stress, reducing anxiety and other emotions associated with the stress, reappraising the stressors, and changing behaviors that are potential sources of the stress. The model conceives of stress responses and outcomes in terms of the three stages set forth in the General Adaptation Syndrome (Selye, 1956). After the perception of stress, the alarm reaction (immediate response) occurs, followed by the resistance stage (intermediate response). Both of these responses have physiological (for example, elevated blood pressure, heart rate, and respiration) and

psychological (for example, anger or anxiety) components. The exhaustion stage (long term outcomes or strains) has physiological, psychological and behavioral components (for example, heart disease, depression, and drug abuse, respectively) and is the end of the process. Personal characteristics of the individual such as ability, personality, sex, ethnicity, and age influence the perception of the stressor and the short-term and long-term outcomes. Personal characteristics also moderate the relations in the model. For example, a worker who has low social or affiliative needs may not perceive interpersonal problems with a coworker as very stressful and is less likely to appraise the problems as a stress-inducing threat. The model pulls together all the components of the stress experience and focuses on the interactive and reciprocal relations among these components. "Integrative" refers to the fact that considering diverse areas of research developed the model. "Transactional" means that the relationships in the model are reciprocal. In other words, each variable in the model is a cause of other variables and is, in turn, an effect or outcome. "Process" indicates that the relationships implied by the model unfold over time and are subject to mediation and moderation (see definitions for mediation and moderation in chapter 3). The remainder of this chapter explores each component of this model and then addresses some practical interventions that can help employees deal with stress.

### The physiology of stress

To really understand what happens when stress is experienced, the reader should consider what happens before he or she develops that upset stomach or headache. Start at the beginning of the stressful experience, and examine what happens to the body at the very moment of encounter with any stressor.

#### Fight or flight.

The intricate chain of physiological events that occurs when an organism (human or animal) encounters a stressor was first investigated early in the twentieth century by a famous American physiologist, Walter Cannon. In his Harvard laboratory, Cannon exposed dogs and cats to a variety of stressors but found that their responses, regardless of the source of the stress, always followed the same pattern. Cannon called this response pattern the fight or flight response because, when faced with a threat (stressor), the organism's body prepares for combat or flight to safety (see figure 6.2).

#### General adaptation syndrome.

Several years after Cannon had mapped the biochemical sequence called the fight or flight response, a young medical researcher by the name of Hans Selye conducted experiments on rats in hope of discovering a new sex hormone. Instead, he made an infinitely more significant discovery by extending Cannon's work on the stress response. In addition to the fight or flight response, Selye discovered another brain pathway involved in the body's response to stress and proposed a three stage process. The long-term outcomes of stress are complex and vary widely with the individual, but the

immediate stress response is much the same regardless of the specific stressor that provoked the response. The series of physiological events that constitute the immediate stress response is much the same regardless of whether the organism stressed is a rat or a human.

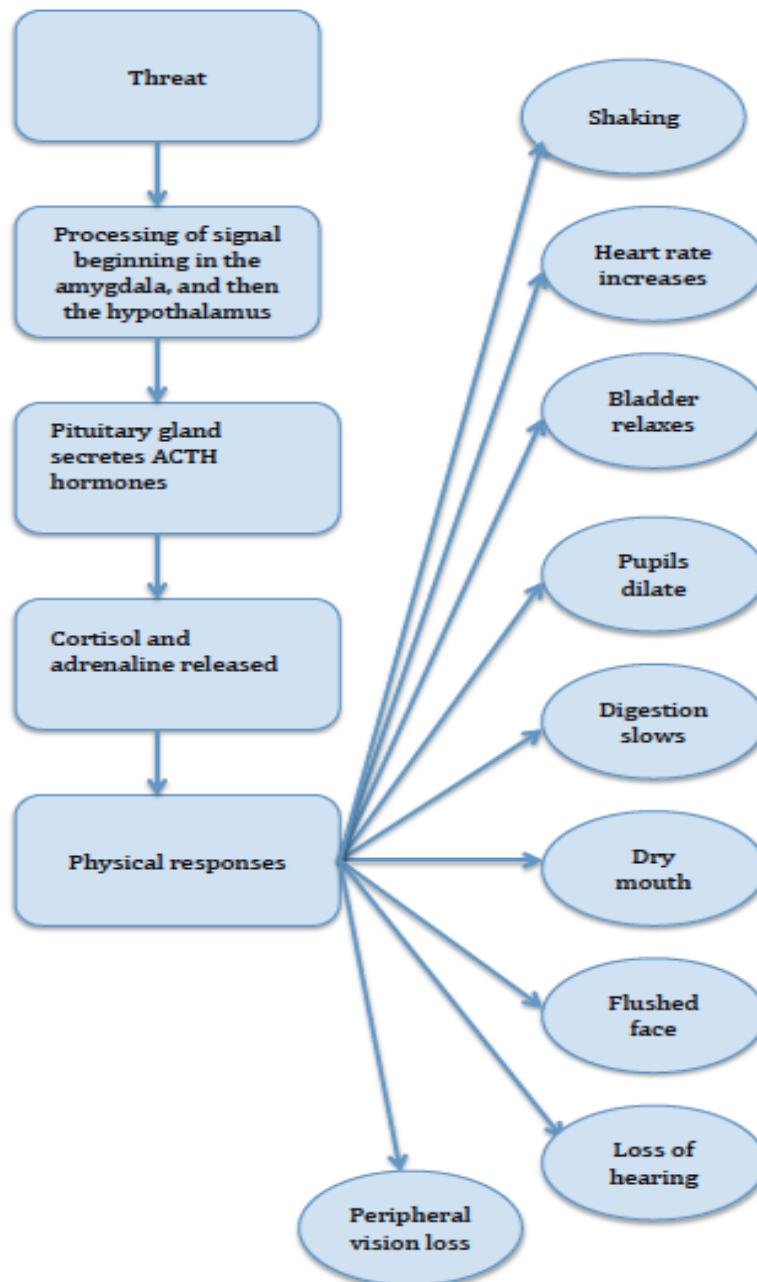


Figure 6.2: The fight and flight responses to stressors.



In considering the short-term and long-term processes and consequences of stress, Hans Selye proposed a three-stage model that is summarized in figure 6.3.

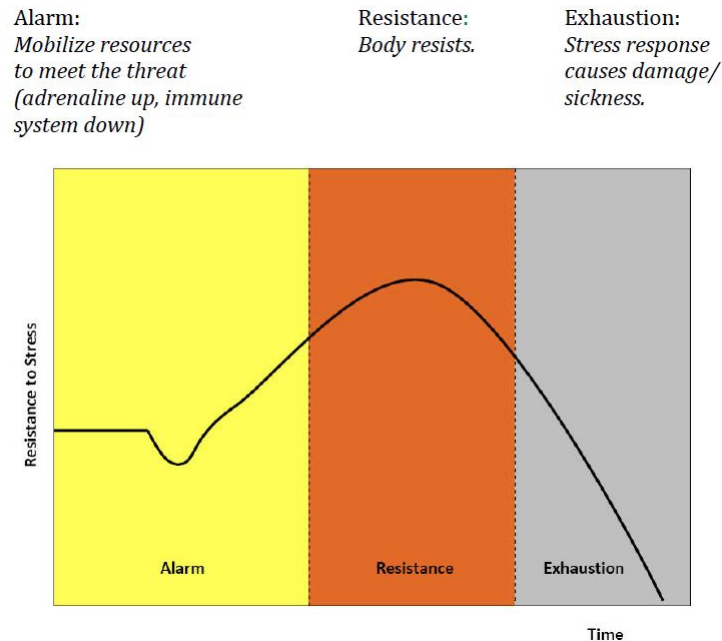


Figure 6.3: Selye's General Adaptation Syndrome (GAS)

Alarm, the first stage of the GAS, is basically the same as the fight or flight response and occurs almost instantaneously. The perception of threat (1) sets in motion a mustering of resources to deal with the threat. The sympathetic nervous system signals the hypothalamus in the brain (2) to release corticotrophin-releasing factor (CRF) which, in turn, triggers the pituitary gland (3) to release adrenocorticotrophic (ACTH) into the blood stream. ACTH travels through the blood stream to the adrenal glands located on top of each kidney and causes the release of the two hormones adrenaline (epinephrine), and norepinephrine (see figure 6.4).

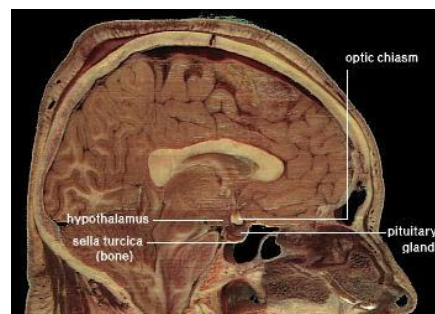


Figure 6.4: The pituitary and hypothalamus glands.

Adrenaline and norepinephrine are collectively called catecholamines. Other types of hormones that the pituitary gland in the brain activates the adrenal glands to produce include the glucocorticoids (see figures 6.5 and 6.6). The glucocorticoids include

steroids, such as cortisol. Their immediate and short-term function is primarily to facilitate the conversion of non-sugars, particularly protein, into sugar (glucose) for energy. Activation of the nervous system and the effects of the hormones that are released into the blood stream produce a host of physiological and biochemical changes in the body.

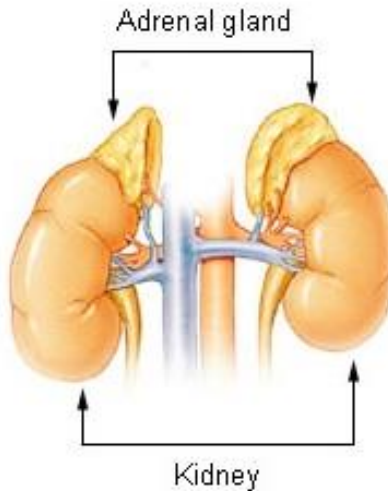


Figure 6.5: Adrenal glands.

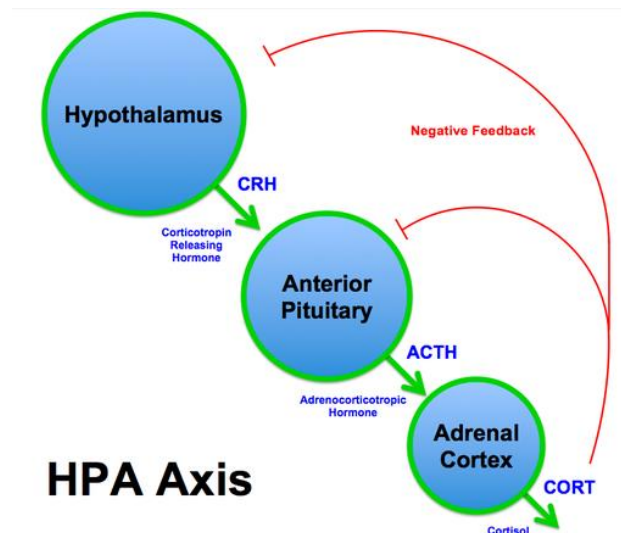


Figure 6.6: The Hypothalamus/Pituitary/Adrenal Axis (HPA axis)

The release of stress hormones has several consequences, all part of the fight or flight response to the perceived threat.

- \*The heart beat is faster, allowing an increase in the volume of blood pumped as well as an elevated blood pressure.
- \*The liver produces more glucose.
- \*Breathing is faster.

- \*The face flushes.
- \*There is a diminishment of hearing and peripheral vision.
- \*Muscles contract.
- \*The output of digestive enzymes decreases.
- \*The eyes dilate.
- \* The movement of food in the digestive track slows.
- \*The blood vessels in the skin constrict often leading to chills and sweating.

The second chain of physiological events culminates in steroid production that Selye termed the stage of resistance. The stage of resistance occurs shortly after the alarm stage and appears at first glance as a stage in which the body is recovering. However, if the stressor is not eliminated, this appearance is only illusory. The costs of longer-term adaptation are high, and if continued, can result in many of the long-term or chronic strains (for example, heart disease). The implications of Cannon and Selye's discoveries present a paradox, and demonstrate quite well that the short and longer term implications of these biochemical reactions can differ. The effect of nervous system activation is to stimulate the immune system through increased white blood cell production. The enhanced immune response provides extra protection for the body in case of injury. However, steroid hormones build up as the result of stress-related adrenal activation, and concentrations of steroid hormones in the body over time can suppress immune functioning. In the longer term, high concentrations of steroids can also weaken muscle tissue, ulcerate the stomach lining, and provoke undesirable mental changes. How our bodies successfully adapt to stress in the short term is very detrimental in the longer term.

Eventually, the body enters exhaustion, the third stage of GAS. In many ways, at least initially, the stage of exhaustion mimics the alarm stage, with the body rallying its last round of defenses. Of course, if the stressor remains or returns too frequently, the eventual outcome is death of the organism. Selye performed autopsies on animals who had undergone severe stress revealed a biochemical outcome associated with each of the stages in the general adaptation syndrome (GAS):

- \*\*adrenal glands enlarged from overstimulation was associated with the alarm stage
- \*\*lymphatic tissue shrunken from the effects of the steroid hormones was associated with the resistance stage
- \*\*bloody, ulcerated stomachs were associated with the exhaustion stage.

The stress response evolved over millions of years because it was useful in helping the organism deal with danger. If an antelope perceives a hungry lion, the increase in heart rate, dilation of blood vessels, contraction of muscles, release of glucose, and the other consequences of the release of the stress hormones, kick starts the flight from the predator. On the other hand, the lion's own stress response triggers an aggressive response that facilitates the capture and killing of the antelope. Early humans also had to contend with predators and other dangers that required immediate, short-term responses to deal with the threats. The stress response allowed primitive humans to deal with a hostile and unpredictable environment and remains useful to modern humans. Without

the fight or flight response or stage of resistance, primitive humans could not have escaped from predators or speared their food.

It is indeed a bitter irony that responses so adaptive for primitive humans are so maladaptive for modern humans. This is not to say that stress is not useful to modern humans. Fred perceives a threat in the form of a looming project deadline and the stress he experiences allows him to muster resources to meet that deadline. However, too many employees perceive too many events in the workplace as threats comparable to a hungry lion, and as a consequence too many of them experience chronic stress that over time have devastating consequences for their health. The experience of stress in response to the short-term threat of a project deadline is functional. Not so functional is the daily experience of stress as a consequence of potential layoffs, peer rejection, neglect of one's family, supervisory disapproval, and the myriad of other workplace events that are often perceived as threats. In a confrontation with an irate supervisor modern humans are usually not aided by an elevated heart rate or rapid breathing. Often, they can neither fight nor flee. Consequently, all too often, they must endure stressors over time, with dire consequences. Chronic stress can lead to psychological disorders such as depression and anxiety, behavioral problems such as substance abuse, overeating, and aggression, and physical disorders such as chest pains, headaches, heart disease, high blood pressure, suppression of the immune system, and disruptions of the gastrointestinal system such as stomach upset, diarrhea, and constipation.

The physiology of stress presents a complex array of events for the stress researcher to consider. The story becomes even more complex with the addition of the psychological processes involved in stress. How employees perceive and feel about the stressors in their lives can also greatly affect their experiences of stress. The psychological influences are the next topic.

### The psychology of stress

A few examples illustrate how the process of experiencing stress works. Suppose employees are working unprotected outside on a scalding August afternoon. How do their bodies react to that environmental stressor? First, they feel uncomfortably warm and start to perspire profusely. If they are exposed to extreme heat for an extended period, they may develop a heat stroke; continued exposure would probably lead to death. What about a stressor that is more typical of modern life, for example, a difficult job? The short-term reaction to this stressor includes tension, headaches, and irritability. Their concern over their jobs disrupts sleep, so they start drinking alcohol to relax. If the situation continues unchanged for weeks, months or years, they develop a host of strain symptoms, such as poor performance, alcoholism, and, finally, cirrhosis of the liver. Liver disease, of course, could eventually lead to death.

How do these two scenarios differ? The tragic outcomes are certainly identical. The first involves an environmental stressor, heat, which emanates from the natural environment. The eventual outcome of experiencing this type of stressor is well understood and fairly predictable; all humans universally experience the effects of heat stress. The second

example, however, involves a very different type of stressor, a stressor influenced by several psychological and social factors. Unlike heat stress, a difficult job is not a universal stressor. For some people, a difficult job is viewed as a challenge and not a threat. In addition, although prescribed coping responses are available for dealing with heat stress (for example, increased fluid intake, frequent rest breaks), coping responses for dealing with a difficult job are as varied as the people who experience this stressor. Identical coping responses for dealing with a difficult job are differentially successful across situations and people. Another distinguishing feature between the two scenarios is that the long term consequences of the physical stressor are easier to predict. A person coping with a difficult job is just as likely to develop heart disease or ulcers as liver disease.

The reactions to stressors depend on such factors as the number and strength of the stressors and the ability to cope. Suppose a worker must breathe highly noxious chemicals while enduring extreme heat, and her general health is poor. She will not cope with this situation as successfully as someone who must handle only exposure to either the heat or the chemical fumes and who is in excellent health.

### Cognitive appraisal.

Perceptions and evaluations of the stressors play a crucial role, especially when discussing psychosocial stressors. In his transactional model of stress, Lazarus (1966) proposed that primary and secondary appraisals were at the heart of the stress process and the bridge connecting the objective stressors, the psychological and physiological reactions to these stressors, and coping. Lazarus (1966) coined the term cognitive appraisal to describe this evaluative process. For stressors such as a difficult job, employees are likely to differ in their responses to the same level of difficulty as a consequence of whether they appraise the situation as stressful or a challenge. Stress is indeed "in the eye of the beholder." Lazarus proposed two types of cognitive appraisals. One type of appraisal is the assessment of the degree of threat posed by the stressor (e.g., is this difficult task a challenge or a threat). The other type of appraisal is the assessment of whether a particular means of coping is likely to work (e.g., if I work harder will I be able to deal with the task). This two-part appraisal process (i.e., assessment of the danger presented by the threat and then an assessment of whether it is possible to cope) can have profound effects. For example, an employee's cognitive appraisal that his boss hates him and the subsequent appraisal that there is nothing he can do to deal with the situation may have no basis in reality but will cause as much stress as if the appraisal were true. The effects of an environmental stressor are also compounded by the cognitive appraisals associated with it. For example, persons exposed to chemical fumes experience negative physiological responses directly as a consequence of the physical event. They also can become very agitated and fearful about their exposure as a consequence of their cognitive appraisals of the threat posed by the fumes and their ability to deal with the threat.

Although it is often difficult to see the upside to stress, stressful encounters inevitably involve not only the potential for suffering but also the possibility of enjoyment and benefit. In encounters with stressors people attach both positive and negative meanings in their appraisals of the situations (Nelson & Simmons (2011). The extent to which individuals suffer from a stressful situation depends on whether their fears and anxieties are balanced by a realistic assessment of the opportunities and whether they are open to experiencing the eustress as well as the stress of the situation.

#### Person-Environment (PE) fit.

Associated with cognitive appraisals are the employees' perceptions of the extent to which their personal characteristics fit or match the work environment. Two types of fit are discussed in P-E fit models of stress (Edwards, 1996). There is the extent to which employees' knowledge, skills and abilities fit the demands of the tasks in the job. To the extent that employees perceive that they possess the competencies needed to satisfactorily perform their duties they are free of stress. To the extent that they feel that they lack the competencies to fulfill expectations, they experience stress. Another dimension of fit involves the congruence between employee values and needs and the extent to which they work situation satisfies these needs. An example of lack of fit is if an employee desires autonomy at work but is closely supervised and not allowed to make any decisions. Another example is if an employee desires social interaction but is isolated from others in the work performed. Lack of fit can also occur when there is too much of what the person desires. No matter what the need, there are limits to how much people want responsibility for decision-making or interactions with others. Having to make all the decisions or having to interact with others all day long could create stress even for the person who desires both. The P-E fit approach to stress suggests that the least stress occurs when there is match between the demand for something (dictated by needs) and the supply of what is needed. An important moderator of fit between needs and the work situation is the importance of the needs to the individual (Edwards & Cooper, 1990). Stress is more likely to occur as a consequence of a misfit between needs or abilities and the work environment when the needs or abilities are important to the employee. To the extent they are not important, a lack of congruence is less likely to evoke stress.

#### Conservation of resources.

As part of their cognitive appraisal of a potentially stressful situation, employees evaluate the availability of resources that will enable them to deal with present and future problems (Hobfoll, 1989). In the conservation of resources model of stress, personal resources could include personality traits such as optimism and self-esteem, environmental resources such as having autonomy in one's job or rewards for successful performance, and social support. A situation is experienced as stressful to the extent that the individual feels that the circumstances will lead to a loss of personal or environmental resources. The perception of resource loss or gain can lead to an upward or downward

spiral. The individual becomes more vulnerable as losses accumulate and becomes more engaged as resources accumulate.

### Job Demands-Control-Support.

Important components of the appraisal process are the assessments of the demands of the situation, the extent to which the employee has control or discretion, and the social support provided by coworkers and supervisors. In the original Karasek and Theorell (1990) model, the emphasis was on Job Demands and Control. Those jobs in which the demands were high and the control or discretion afforded to employees was low were hypothesized to be the jobs that were most stressful. Later research found that social support was crucial factor to consider and buffered the adverse consequences of high demand/low control situation (Johnson & Hall, 1994). When employees have coworkers or supervisors who provide support, they are better able to deal with high demands and low control. Consequently, the negative impact of high demands/low control is reduced. There is also some evidence that employees who have control and social support are engage in more problem solving and accumulate additional resources over time that enable them to more effectively cope with stress (Daniels, Glover, Beesley, Cohen & Cheyne, 2013).

### Points to ponder

1. Stress is often associated with the greatest pleasures in life as well as some of the greatest distresses. Provide example of each type of stress in your own life.
2. How is it possible that eustress is associated with the same problems as distress?
3. Motivating employees to pursue organizational goals and to exert effort and show persistence in the pursuit of these goals requires that we create stress. Explain why this is true and why motivation can never occur without stress.
4. One criticism of the Selye General Adaptation Syndrome is that although it aptly describes stress in non-humans, people demonstrate a more complex set of events. Illustrate how this might happen in a work setting.
5. Identify the stressors and your responses to these stressors in your current role as a student. Do you think you effectively cope with these stresses? Why? Why not?
6. The research has clearly shown that cognitive appraisals constitute a crucial link in the experience of stress. Illustrate how your own responses to stressors have been affected by your appraisals of these stressors. What type of interventions could we use to manage stress based on this mediating role of appraisal?
7. The essence of stress is a mismatch between the resources one can bring to bear to deal with difficulties in your life and the extent of these difficulties. Provide examples of the various ways that such a mismatch can occur in a work setting.

## What are Potential Stressors for Workers?

The psychology of stress shows that almost any event in the environment is potentially a trigger for stress responses. However, some occupations and some work place events appear more likely to serve as stressors than others. Let us now examine some of these especially potent external sources of stress.

Some of stressors are associated with the tasks performed in the job. Other stressors are associated with the physical work environment. Still others are more organizational in nature. The discussion that follows starts with an examination of the relative stressfulness of occupations and then explores some of the stressors that are potentially present in any occupation. The stressors include lack of social support, work overload, lack of control and autonomy, work underload, aversive physical environments, role stress, injustice, politics, shiftwork, interpersonal conflicts, downsizing, and work-family conflicts.

## What occupations are most stressful?

Stressful jobs span the organizational ladder from the bottom rung to the very top. From a study of 22,000 workers, the National Institute for Occupational Safety and Health (NIOSH) compiled data on the incidence of stress-related diseases such as ulcers and cardio-vascular disease in over one hundred occupational groups. According to NIOSH, among the most stressful occupations, as indicated by incidence of stress-related illnesses, were

- \*\*secretaries and clerical workers
- \*\*laborers
- \*\*lab technicians
- \*\*first-line supervisors
- \*\*managers
- \*\*waitresses or waiters,
- \*\*machine operators

The law enforcement profession is so universally recognized as stressful that a magazine, Police Stress, deals specifically with occupational stress in police work. Because of the often-erratic nature of police work, police officers report both work overload (too much to do) and work underload (too little to do) as stressors. Faulty equipment, shiftwork, dealing with the court system, and the physical dangers of the job are additional sources of stress (Davidson & Veno, 1980). Police officers also have very high rates of divorce (Hurrell, 1977) and alcoholism (Heiman, 1975), both of which are common strains.

Medical personnel, particularly nurses, have been the targets of much stress research. In general, nurses report that death of patients, uncertainty about patient treatment, inability to meet patient needs, and interpersonal problems with other medical staff, such as physicians, are common job stressors (Lee, 1987). For instance, in a survey of 171 nurses across five hospitals researchers found that work overload, little support from



supervisors, and negligent or incompetent coworkers were sources of stress, and were related to depression and decreased work performance (Motowidlo, Packard & Manning, 1986).

Dentists are among the most stressed medical professionals. Researchers in one of study identified dentists' job-related stressors by interviewing a sample of dentists gathered for a dental association meeting (Cooper, 1980). They found that coping with difficult patients, building a practice, administrative duties, and public opinion of the dentist as an inflictor of pain were the chief job stressors. They also found that those dentists who indicated that some of these stressors were a problem for them showed increased blood pressure and abnormal heart recordings (electrocardiograms). A similar study conducted several years later in Great Britain (Cooper, Watts, Baglioni & Kelly, 1988) replicated many of these findings. An examination of the work stressors listed by both nurses and dentists reveals that these stressors typically involve interpersonal interactions or interdependency on others (usually coworkers). Medical professionals are thoroughly trained as skilled scientists and problem-solvers but are often woefully unprepared to deal with people and administrative issues.

Occupations differ in the types of stressors that are most important. Interviews with employees in academic, clerical, sales, and engineering occupations identifies some of the more important stressors in each profession (Mazolla, Schonfeld and Spector (2011)). Interpersonal conflict is a major stressor across all four occupations, but the profile on the other stressors varies as a function of occupation. In academic jobs, the most frequently mentioned stressors were overload, lack of control, and organizational constraints. Those in clerical jobs reported work overload and lack of control. In sales, waste of time and overload were most frequently mentioned. In engineering, time wasted and work underload were among the most frequently mentioned stressors.

It is useful to examine in more detail the specific stressors that trigger the physiological, emotional, and behavioral reactions that define the stress response. So let us now examine in more detail some of workplace stressors that psychologists consider most important.

### Lack of support

Employees who believe that coworkers, supervisors, and the organization do not care about them and are unlikely to provide them with support are especially vulnerable to stress. Take, for example, the following secretary's experience with a nonsupportive supervisor:

*Linda has worked for a very large brokerage firm for many years, for the past three years in Boston. She is the secretary to the office manager and when he is out of the office, it is assumed that -she will take over. Her boss is very unsupportive. When she asks to see her job description, he says things like, "I'll get on that" but he never does. Linda feels she should get a raise because she's responsible for the office running smoothly when he is away. But she's been told by her manager "If you don't like it here,*

*leave" in just so many words. In fact, the company makes it very clear that there are many applicants for her type of job, and she was told that they could probably fill her vacancy (if she left) that same day! (Working women education fund, 1981, p. 15)*

Researchers have investigated the effects of work-related social support, or social support from coworkers and supervisors, on strains (primarily job attitudes and health). In these studies, the types of social support provided by coworkers and supervisors have varied, ranging from emotional comfort to support in the form of feedback, information, or financial aid. The level of work-related social support is typically found to affect employee attitudes and health, but the strength and nature of the effects often vary considerably across studies.

Psychologists have distinguished between two types of social support. Instrumental support is the offer of some tangible means of help to a worker. For instance, if an employee receives assistance in solving a technical difficulty or the supervisor helps the employee by putting in a good word for promotion or protecting him from others in the organization, the supervisor is providing instrumental support. Somewhat less tangible but important nonetheless is emotional support. Here coworkers or the supervisor serve as confidants, counselors, or friends, perhaps offering sympathy and in some other ways communicating that they are aware of the employee's needs and care for their well-being.

There are two primary ways in which lack of support in the workplace is related to strain. First, a lack of support can directly impact strains independently of other stressors. For example, in a sample of workers from five different organizations, employees who reported low supervisor (emotional) support also reported the presence of strains, such as dissatisfaction with work and depression (Beehr, 1976). The investigator in another study examined social support in a sample of bus drivers and discovered that drivers with supportive supervisors and coworkers were more satisfied with their jobs (Blau, 1981).

Second, the presence of social support can buffer or moderate the effects of stressors on strain. When this occurs social support does not necessarily affect the experience of stressors directly but instead weakens the effects of stressors on psychological, physical, and emotional strain. In one of the studies demonstrating the buffering effects of social support, employees in a chemical plant were surveyed about the work-related social support they received and their health (House & Wells, 1978). Among the highly stressed employees those whose supervisors provided them with support reported fewer mental and physical health problems than those whose supervisors provided less support. A similar buffering effect also existed between extra-organizational support and strain. Those employees who received social support from their spouses, family, and friends reported fewer negative consequences from high levels of stressors than those lacking these extra-organizational sources of support. One implication of the research showing buffering effects is that providing instrumental and emotional support to employees is most important when employees work under stressful conditions.

Although researchers have reported some support for the buffering effects of social support, the research on the role of social support is contentious and has consisted of

disputes over statistical procedures and theoretical interpretations (e.g., see reviews by Beehr, Farmer, Glazer, Gudanowski & Nair, 2003 and Beehr, Bowling & Bennett, 2010). A meta-analysis of the research testing the influence of social support provides some support for the buffering effects of social support (see table 6.1). The findings reveal a small moderating effect in which social support weakens the negative effects of stressors on strain (Viswesvaran, Sanchez & Fisher, 1999).

This same meta-analysis also reports direct effects of lack of support on strains in which lack of social support increases strains. The accumulated findings of research on the relation of stressors and strains indicate that there is a small relation between self-reported lack of social support and self-reported strains (e.g., dissatisfaction, withdrawal intentions, neuroticism, and burnout). In other words, to the extent that employees report that they have support from their coworkers, supervisor, friends, family, and other people, they are less likely to report that there are other stressors in their jobs and they are less likely to report negative affective and behavioral outcomes (Viswesvaran, Sanchez & Fisher, 1999). However, it is important to note that none of the uncorrected correlations reported in table 6.1 were statistically significant at conventional levels. The controversy surrounding the buffering hypothesis continues. Despite the disagreements among researchers, social support does appear to play an important role as a direct source of strain and as a moderator of the relation between stressors and strain.

Type of social support	k	N	r <sub>uc</sub>	r <sub>c</sub>
Correlations with self-reported stressors				
Coworker Support	58	36,087	-.08	-.10
Supervisor Support	47	30,315	-.11	-.14
Family and friend support	25	6,705	-.11	-.14
Support from others at work	15	4,089	-.26	-.35
Correlations with self-reported strain				
Coworker Support	81	52,204	-.15	-.18
Supervisor Support	71	48,000	-.20	-.24
Family and friend support	27	6,703	-.19	-.23
Support from others at work	21	3,513	-.19	-.23

k = number of correlations; N = number of participants;  
r<sub>uc</sub> = sample size weighted; Sample size weighted mean  
uncorrected correlation; r<sub>c</sub> = corrected correlation.

Table 6.1: Correlations of Support with Self-Reported Stressors and Strain  
Work overload and demands

An important stressor is the overall demands placed on a worker to produce high quantity and/or quality of work often under high time pressure and rigid deadlines. In one of the more commonly used measures of workload, employees are asked to report on how fast they are required to work, how hard they must work, the frequency with which they are left with insufficient time to accomplish their tasks, and the extent to which the amount of work required exceeds what an employee can do well. As shown in table 6.2, self-reports of high workload are consistently related to a variety of symptoms associated with poor health. Higher workloads are associated with backaches, dizziness, headache, eye strain, sleep disturbances, gastrointestinal problems, and fatigue (Nixon, Mazolla, Bauer, Krueger & Spector, 2011).

Self-reported Symptom	k	N	$r_{uc}$
Backache	40	11,086	.12*
Headache	39	10,643	.14*
Eye strain	33	7,989	.20*
Sleep disturbance	39	10,644	.14*
Dizziness	33	7,988	.10*
Fatigue	33	8,744	.31*
Loss of appetite	33	7,989	.11*
Gastrointestinal	39	10,642	.13*
Overall (cross-sectional)	92	36,610	.22*
Overall (longitudinal)	7	3,057	.16*

k= number of correlations; N = number of participants;  
 $r_{uc}$  = sample size weighted; Mean observed correlation;  
 \*= confidence interval for the correlation excludes zero.

Table 6.2: Correlations of Self-Reported Workload and Physical Symptoms.

Take for example the account of this employee:

*D.M. describes two successive jobs at one of the country's most prestigious universities. In her first job, she typed for several professors, with no one supervisor to intercede when deadlines conflicted. As a result, she had extreme pressure to complete work by unrealistic deadlines. .... When she was out sick, he called her at home with work-related demands. Because D.M.'s stomach problems became so severe, her doctor advised her to transfer out of the first job to avoid developing an ulcer (Working Women*

*Education Fund, 1981, p. 11).*

*In her current job (as in the first) the pay is very low, while the workload is very heavy with frequent overtime expected. She often works continuously with no breaks or lunch hour. She experiences constant interruptions from professors and impatient students (Working Women Education Fund, 1981, p.11).*

These are examples of *quantitative work overload*, or having too much to do (Glowinkowski & Cooper, 1986). Work overload in managers has been associated with increased alcohol consumption and lower motivation (Margolis et al., 1974), anxiety and depression (Cooper & Roden, 1985), and coronary heart disease (Russek & Zohman, 1958). Interestingly, some occupations are considered stressful, not because they require too much in terms of the quantity of work, but because they require too much in terms of the quality of work. This aspect of work overload is called *qualitative work overload*, or having work that is too difficult. Engineers and scientists appear to identify qualitative overload as a particularly important source of stress due to the technical detail of their work (French & Caplan, 1973).

#### Lack of control and autonomy

The inability to control the work environment is related to the psychological experience of stress (Luchman & González-Morales, 2013). In this meta-analysis, self-reports of lack of control and autonomy are associated with reports of emotional exhaustion, cynicism, and job dissatisfaction. Also, reports of lack of control are also associated with less support from coworkers and supervisors.

Self-reported Symptom	k	N	r <sub>uc</sub>
Backache	13	5,556	.13*
Headache	12	3,522	.07*
Eye strain	6	867	-.01
Sleep disturbance	12	3,522	.13*
Dizziness	6	867	.06
Fatigue	6	1,621	.08
Loss of appetite	6	867	.03
Gastrointestinal	12	3,522	.09*
Overall (cross-sectional)	25	10,215	.07*
Overall (longitudinal)	4	2,455	.14*

k = number of correlations; N = number of participants;  
r<sub>uc</sub> = sample size weighted mean uncorrected correlation;  
\*confidence interval for correlation excludes zero.

Table 6.3: Correlations of Self-Reported Control at Work and Physical Symptoms.

Poor physical health is also associated with stress, although as indicated in table 6.3, the correlations are small and most are statistically nonsignificant (Nixon, Mazolla, Bauer, Krueger & Spector, 2011). Employees reporting lower control tend to report more backaches, sleep disturbances, and gastrointestinal disturbances.

Even in occupations in which the level of control is generally high, there are often potential domains over which the employee may experience acute stress because of a lack of control. Some medical care occupations are subject to high levels of stress because some patients are going to die regardless of the quality of care they receive. Take, for example, this oncology nurse's account of her experiences in dealing with terminal patients:

*"To see (a patient) lose that (life) and to struggle to try and hold to it and not be able to...you know, was the hardest part for me. We really didn't – weren't prepared for (death). And he had a disease that we thought he was going to be able to recover from.*

*"I think what we experience regularly, unfortunately, is people getting the news that their hopes are being dashed, because they're being told that their follow-up shows their cancer has recurred."*

*"There's nothing else we can do... You know, make sure their pain is under control, just make sure their symptoms (are under control). If they're going to hospice, make sure they're going to a good place. Or if they're going home, that they have the things set up for them when they're at home." (Wenzel, Shaha, Kimmek, & Krumm, 2011, p. 272).*

Investigators in a survey of 9,000 British civil servants found that control in the workplace was an important predictor of cardiovascular heart disease (Bosma, Stansfeld & Marmot, 1998). Perceived job control was measured through both self-reports of workers and their supervisors. Both worker self-reports and supervisor reports of job control were found to predict the incidence of heart disease five years later. Workers reporting low control were 1.5 to 1.9 times more likely to report cardiovascular heart disease than those reporting high control. These effects were independent of the type of work performed, other risk factors (e.g., smoking), and the sex of the respondent.

A meta-analysis confirmed the relation between employees' self-reports of control and several stress-related responses (Luchman & Gonzalez, 2013). As seen in table 6.4, reports of lower control were associated with more reports of emotional exhaustion and cynicism. Reports of higher control were associated with higher job satisfaction. Interestingly, employees who reported that they had lower control over their work situations also reported that they lacked support from supervisors and coworkers.

One explanation for the lower strain experienced by employees who report high control is that having control over one's situation is associated with cognitive, behavioral, and emotional responses that lessen the negative effects of stressors (Spector, 2002). A worker who has more control might perceive stressors as less threatening, experience less

negative emotion in response to the stressors, act more proactively on the work environment, and have more coping mechanisms available for dealing with the stressors.

Variable	k	N	$r_{uc}$
Work Demands	101	159,500	-.02
Supervisor Support	28	110,734	.30
Coworker Support	30	110,734	.23
Emotional Exhaustion	31	22,893	-.18
Cynicism	14	12,131	-.22
Job Satisfaction	46	35,428	.31

k= number of correlations; N = number of participants;  $r_{uc}$  = sample size weighted uncorrected correlation

Note: The authors report that the correlation between work demands and control was nonsignificant (-.02) whereas the correlation between supervisor support and coworker support with control were statistically significant. We can assume that the correlations for emotional exhaustion, cynicism, and job satisfaction were also statistically significant, but this is not reported in the manuscript.

Table 6.4: Correlations of Employee Self-Reports of Lack of Control with Psychological Strain and Reports of Social Support

Karasek and Theorell (1990) proposed an influential, albeit controversial, model that identifies employee control or autonomy as a primary means of coping with job demands. According to the Karasek and Theorell (1990) Job Demands-Control-Support model, as the demands on an employee increase (e.g., time pressures, uncertainty, work load) and the control they can exercise in their job decreases, employees experience more strain (i.e., negative reactions to the stress). Karasek and his colleagues have distinguished among four general categories of jobs based on whether they allow high or low levels of control and whether the demands are high or low. When demands are high and control is high (active jobs), workers rise to the challenge and are motivated to work hard and succeed. Because the work has control, they experience relatively low levels of strain. When demands are low, workers tend to show little strain regardless of whether they have control (low strain jobs) or do not have control (passive jobs) over their work. The

greatest risk of stress and strain is among those jobs in which the demands are high and control is low. In these jobs the person is overwhelmed and cannot muster the resources needed to deal with the demands. Table 6.5 describes the four job categories and also shows examples of occupations for each category.

Amount of Control in Job	Psychological Demands of Job		
	Low Demands		High Demands
	High Control	Low Strain (low risk of psychosomatic illness): *Auto repairman *Sales clerk *Forester	Active (high levels of learning) *Physician *Manager *Real Estate Agent
	Low Control	Passive (low levels of learning) *Janitor *Truck driver *Night watchman	High Strain (high risk of psychosomatic illness) *Cook *Mail worker *Fireman

Table 6.5: Karasek's Job Control-Demand Model of Work Stress

Although the Job Demands-Job Control-Support model is intriguing, the findings of research are mixed in the support for the model. Moreover, numerous critics have picked away at the methodological, statistical, and conceptual issues (Fletcher & Jones, 1993; Ganster & Fusilier, 1989; Payne & Fletcher, 1983; Warr, 1991).

#### Work underload: monotony and lack of challenge

Jobs that are highly demanding are typically seen as stressful jobs. For instance, as already mentioned, the Job Demands-Job Control-Support model categorizes jobs that are low on demands as low on strain regardless of whether the employees have control or not. However, strain can also result from jobs that are unchallenging, routine, and boring especially when they require employees to engage in sustained and continued repetitive activities with minimal variation in pace. Boredom was among the first topics studied by psychologists. The early research identified decreased physiological arousal and negative attitudes toward work as the two primary affective states associated with boredom (Barmack, 1937). The responses of these data entry operators are typical of employees experiencing extreme boredom:

*"I've been doing this job for 10 years, and I've been tired for 10 years," says a 30-year-old data entry operator. "It's the monotony that does it. I'd like to know what it feels like not to be tired."*



*A woman who worked as a clerk-typist in a large San Francisco law firm recalls: "In that law office job, 'cause I hated it so much and it was so boring, I just felt like I was the living dead. I had no attitude. It was like being in a coma for two years. (Working women Education Fund, 1981, p. 13).*

A questionnaire constructed to gauge the experience of boredom at work contains the following questions (Reijseger, Schaufeli, Peeters, Taris, van Beck & Ouweneel, 2013):

1. At work, time goes by very slowly.
2. I feel bored at my job.
3. At work, I spend my time aimlessly.
4. At my job, I spend my time aimlessly.
- 5 During work time I daydream.
6. It seems as if my working day never ends.
7. I tend to do other things during my work.
8. At my work, there is not so much to do.

The readers may wish to ponder how boring their present or past jobs have been in terms of these questions. They also may want to consider the psychological and physiological consequences of their boredom. In one demonstration of the effect of monotony on strain, a group of sewing machine operators performing repetitive work were compared to a control group performing less monotonous and repetitive tasks (Hansen, Kaergaard, Andersen, & Netterstrøm, 2003). The sewing machine operators exhibited lower levels of adrenaline than the workers performing the less monotonous tasks. At the same time, the sewing machine operators exhibited several other endocrinological responses indicative of stress responses including lower concentrations of plasma-free testosterone and catabolic responses. The sewing machine operators also reported more demands on them and less control than the workers performing the less repetitive tasks. In a second demonstration of the stressfulness of boring and monotonous tasks, young adult workers who reported low skill variety, low autonomy, lower cognitive demands, and boredom were more likely to report binge drinking of alcohol, drug abuse and depression (Wiesner, Windle & Freeman, 2005).

The jobs that are totally machine-paced (that is, the machine totally controls the flow of the work) are usually the most boring and stressful. In these jobs, the worker has no control over work, and often has difficulty consistently pacing him/herself with the machine. Workers in machine-paced jobs have been found to have high levels of physiological stress (adrenaline), anxiety, depression, somatic (body) complaints, and job dissatisfaction (Smith, 1985). It is important to note, however, that tedium, boredom, and monotony are part of even those occupations that are normally thought of as exciting and highly meaningful. An example is the orchestra musician. Although this is highly skilled and constantly challenged occupation, orchestra musicians report distress due to both role overload and boredom associated with role underload (Parasuraman & Purohit, 2000). Physicians, engineers, teachers, social workers, and people employed in a variety of other

professional occupations normally thought of as having a high workload also experience moments of extreme boredom.

### Aversive physical work environment

The lighting, furniture, air quality, room temperature, noise levels, and the general safety and comfort are among the physical characteristics of the work environment that can serve as stressors. Take, for example, this cashier and the stress she experiences as a consequence of her physical work environment.

*"I'm not positive, but two things have especially bothered me and affected my health," says a 28 year old cashier for a Boston university. "My sitting on a high chair pitted up to a counter where I am a cashier is really uncomfortable and may have contributed to the lower back strain that kept me out of work for a while last Spring. Also, the fluorescent lights are too bright, and I think they may be what gives me splitting headaches."* (Working women education fund, 1981, p. 42).

Many blue-collar and working-class jobs involve activities in traditional industrial environments, such as foundries or factories. Consequently, blue-collar stressors differ from those experienced by office workers. Blue-collar workers are frequently exposed to environmental stressors, such as high levels of noise and extreme temperatures. The jobs of many factory workers also involve repetitive activities, which may lead to feelings of boredom and monotony. (Blue-collar workers also frequently work different shifts, another job-related stressor).

Many workers in foundries and factories are exposed to noise created from the operation of machinery, such as jackhammers or drill presses. The most obvious concern with such noise in work environments is the potential for hearing loss. Initially, the hearing loss is usually temporary, and returns after the worker leaves the job for a few hours or days. However, with continued exposure over time, the temporary loss can become permanent. This occurs because exposure to high intensity noise actually kills the auditory receptors in the inner ear, thereby preventing transmission of nerve impulses to the brain. This type of hearing loss is not correctable surgically or with a hearing aid. For these reasons, the Occupational Safety and Health Administration (OSHA) has set standards for exposure times of workers at different noise intensities. A permissible noise exposure for a noise level of 110 decibels, which is equivalent to a rock concert with an amplifier at six feet, is only 30 minutes!

Noise is often thought to affect performance, as anyone who has tried to concentrate in a noisy environment can attest. There is clear evidence that high intensity noise is related to a generalized stress response (Jansen, 1969; Burns, 1979). However, the effects of noise on performance are far from clear-cut. In general, task performance is only impaired at very high noise intensities. Performance deficits are particularly obvious for difficult or demanding tasks. Simple or routine tasks, on the other hand, are typically not affected by

noise, and sometimes noise increases performance on simple tasks (Sanders & McCormick, 1987). This enhancement effect probably occurs because the noise acts as a stressor, raising the person's arousal level and therefore overcoming the boredom associated with the task. Unfortunately, most of the evidence on task performance under noisy conditions comes from laboratory experiments. There is a lack of research that would allow generalizing the findings from the lab to less controlled conditions in real work settings.

The author has worked near a blast furnace in a steel mill and can attest to the stressfulness of the extreme temperature conditions. Because of the potential health effects of enduring extreme heat, heat exposure limits have been set by OSHA. These standards vary according to air temperature, airflow, air humidity, workload levels (light, moderate and heavy work), and work-rest schedules (for example, one-half work and one-half rest pauses). Similar to the effects of noise on performance, the effects of heat on performance are complex. In general, performance on physical tasks, such as typical factory work, deteriorates only under the hottest temperatures, above 100° F. (Meese, Lewis, Wyon, & Kok, 1984). For demanding mental tasks, performance deteriorates under heat exposure, but particularly when two or more tasks are "timeshared" or performed simultaneously (Hancock, 1981). As is the case with the effects of noise, most of the data on heat performance comes from laboratory experiments and may not generalize well to industrial environments (Sanders & McCormick, 1987).

Although cold exposure is less common than heat exposure in contemporary work environments, sometimes workers must endure exposure in refrigerated chambers or in winter weather. Apart from the health risks associated with cold exposure, such as frostbite, little is known about performance in frigid conditions. Similar to performance under heat exposure, performance under cold exposure is affected by, for example, such factors as air temperature, air humidity, airflow, and length of exposure to cold conditions. It does appear to be the case that finger dexterity decreases at temperatures below 55° F., with much greater decreases at lower temperatures (Riley & Cochran, 1984). In general, however, there is a lack of research on whether manual performance is severely affected by cold exposure. Even less is known about the effects of cold conditions on the performance of mental tasks (Sanders & McCormick, 1987).

## Shiftwork

Another quite damaging stressor that is defined as a physical stressor is shiftwork (Frese & Okonek, 1984; Frost & Jamal, 1979; Gadbois, 1981; Holler, 1983). In a rotating shift-work schedule the work schedules of employees change, usually from week-to-week. In the typical rotating shift-work schedule, an employee might work from 7 am to 3 pm the first week, from 3 pm to 11 am the second, and then from 11 am to 7 am the third (the so-called "graveyard shift"). The research has shown that rotating shift-work is quite harmful, both physically and psychologically to workers, and it seems that stress plays a role. A much better practice to maintain the health of employees is to have them work on one, fixed schedule.

As already mentioned, the effects of many environmental stressors can adversely influence the physical health of workers, particularly at high or sustained levels. The federal government (OSHA) therefore regulates exposure levels of many these stressors in industrial settings. Unfortunately, knowledge of how these environmental stressors affect task performance is mostly limited to the results of laboratory studies under controlled conditions. More research investigating how these stressors affect performance in industrial settings is clearly needed.

## Role stress

Whereas the blue-collar stressors frequently involve characteristics of the industrial environment or the work itself, white-collar stressors are usually more related to the worker's role in the organization, or the tasks, duties, and expectations that identify the worker's position in the organization. For example, a clerk-typist's work role includes such tasks and duties as typing correspondence, filing papers, making ledger entries, sorting mail, and so on. The clerk-typist has his or her own expectations concerning which of these duties are most critical in performing the job. The clerk-typist's coworkers and supervisor also have expectations concerning the clerk-typist's role (in terms of tasks and duties) at work.

Much organizational stress research in the last twenty-five years has investigated what happens when workers experience difficulties with their work role demands. Two other role-based stressors are role conflict and role ambiguity. Role conflict occurs when role demands are in conflict. This is illustrated by examining three common types of role conflict. Intrasender conflict occurs when one person (often called a role sender) communicates mixed or conflicting messages. For example, a department manager asks her subordinates to increase productivity but to cut back on overtime. A mother tells her daughter to become popular but also to keep up her grades. Intersender conflict implies that two or more people send conflicting messages. An example is if one's mother demands one action and the father demands the opposite. This type of role conflict is commonly found in organizations when a worker has more than one supervisor; often, satisfying one supervisor neglects the demands of the other. Interrole conflict occurs when two or more roles conflict for one person. For example, women today frequently find that the multiple demands of their roles as parent, worker, wife, and student conflict.

Role ambiguity is another type of role stress and results whenever role demands are unclear or unknown. Role ambiguity can occur if there is inadequate or confusing information about how to perform certain tasks related to one's role (as a worker, student, etc.). The new employee who does not understand how to operate the copy machine or computer is suffering from ambiguity concerning these activities. In addition, role ambiguity can result from inadequate or confusing information about how one is evaluated. The worker who does not know what behaviors are important for success in the organization (for example, punctuality, working overtime) is suffering from evaluation ambiguity. When the professor does not tell students what they need to do to earn an A is another example of evaluation ambiguity.

The third type of role conflict is role overload, which we have already discussed. This can exist in the form of too much to do and in the form of tasks that are too difficult.

Here are some examples of items from a commonly used organizational role conflict, role ambiguity, and role overload questionnaire.

#### Ambiguity

I have clear, planned goals and objectives in my job.  
Explanation is clear of what has to be done.

#### Role Conflict


I receive incompatible (conflicting) requests from two or more people.  
I have to do things that should be done differently.

#### Role Overload

It often seems that I have too much work than one person can do.  
The performance standards on my job are too high.

**Stressors**

- Job Characteristics
  - ◆ Role conflict
  - ◆ Role ambiguity
  - ◆ Role overload



Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964) conducted one of the first investigations of role conflict and role ambiguity in organizations by interviewing and surveying a representative sample of employees. They found that role conflict and role ambiguity were associated with substantial strains, such as job tension, job dissatisfaction, and lack of trust, confidence, and respect.

Other role-related variables are also potentially important white-collar stressors. By definition, the manager typically manages the work of people in the organization. This implies that the manager's work role includes responsibility for other people. Responsibility is esteemed in society. However, the risks of failure are often great, resulting in personal and professional trauma. Surprisingly, few researchers have investigated this stressor. In of the exceptions, risk factors associated with coronary heart disease were examined in a group of NASA employees (Caplan, 1971). The investigator discovered that those workers who had responsibility for people also smoked more heavily, a risk factor for cardiovascular disease.

Meta-analyses of the many studies conducted on role stress have reaffirmed the negative consequences of role conflict and role ambiguity that Kahn and his colleagues first documented more than sixty years ago (see table 6.6). In one of the earliest meta-analyses of the research on role conflict and role ambiguity, increased levels of these role stressors were associated with lower worker participation and organizational commitment, and higher tension/anxiety, and a higher propensity to leave the organization (Jackson & Schuler, 1985). The results reported in more recent meta-analyses are consistent with these findings and have shown that self-reports of role conflict and role ambiguity are associated with a variety of stress-related responses (Nixon, Mazolla, Bauer, Krueger & Spector, 2011; Örtqvist and Wincent, 2006); Schmidt, Roesler, Kusserow, & Rau, 2014). These results were consistent with another meta-analysis of the research on the relation of stressors and strains (Viswesvaran, Sanchez & Fisher, 1999) showing a small correlation among self-reports of role conflict, work overload, and role ambiguity with self-reports of strains (e.g., dissatisfaction, withdrawal intentions, neuroticism, burnout).

Variable	Role Conflict			Role Ambiguity			Source
	k	N	r <sub>uc</sub>	k	N	r <sub>uc</sub>	
Depression	20	10,538	.29	27	13,703	.25	Schmidt, et al, 2014
Emotional exhaustion	8	1,931	.12	9	1,752	.22	Örtqvist et al 2006
Tension	7	1,220	.43	8	1,435	.35	Örtqvist et al 2006
Job satisfaction	39	9,780	-.40	42	10,062	-.39	Örtqvist et al 2006
Depersonalization	7	1,827	.00	7	1,495	.22	Örtqvist et al, 2006
Personal Accomplishment	7	1,827	.04	7	1,495	-.17	Örtqvist et al, 2006
Organizational commitment	14	2,715	-.36	12	2,393	-.48	Örtqvist et al, 2006
Intent to turnover	8	1,188	.37	8	1,188	.36	Örtqvist et al, 2006
Performance	16	4,057	-.08	18	4,301	-.18	Örtqvist et al, 2006
Physical symptoms (cross-sectional)	26	4,880	.27	33	13,556	.15	Nixon et al, 2011
Physical symptoms (longitudinal)	4	499	.10	4	726	.17	Nixon et al, 2011

k= number of correlations; N = number of participants; r<sub>uc</sub> = mean sample size weighted uncorrected correlations

Table 6.6: Correlations of Role Conflict and Ambiguity with Stress-Related Responses

#### Interpersonal conflict

Interpersonal conflict at work is a significant stressor (Smith & Sulsky, 1992) that is

associated with a variety of physical symptoms such as backache, headache, eye strain, sleep disturbances, fatigue and dizziness (Nixon, Mazolla, Bauer, Krueger & Spector, 2011). Indeed, interviews with employees with sales, academia, clerical work, and engineering found that interpersonal conflict was the most important source of stress for three of the four and was the second most frequent source for the fourth occupation (engineering). When one considers that the response of organisms to threats evolved primarily as a means of protecting against very real threats to physical well-being (e.g., attacks by predators or enemies), one can easily see how interpersonal conflict would evoke a direct and immediate stress response. There are also indirect effects such as when interpersonal conflict stifles effective communications and thereby create stressors such as role ambiguity (French & Caplan, 1970).

Surveys of employees indicate that there are three important types of interpersonal conflict (Bruk-Lee, Nixon & Spector, 2013). Task conflict occurs as the result of conflicting work goals and other issues related to performing tasks and is measured with such items as “How often do people you work with disagree about opinions regarding the work being done?” Relationship conflict occurs where there are clashes in personality, attitudes, preferences, and values. A representative item was “How much are personality conflicts evident in your workplace?” A third type of non-task organizational conflict (NTO) arises over policies, leadership, culture, benefits, decisions, and power. One of the items measuring NTO is “Are you in a dispute with someone at work because of a company policy?” All three types of conflict are related to self-report of physical symptoms associated with stress, cardiovascular risk factors such as hypertension, and negative emotional states (Bruk-Lee, Nixon & Spector, 2013). Interestingly, Bruk-Lee et al found that the extent to which employees reported non-task related organizational conflicts was strongly related to strains and predicted these outcomes even after controlling for task and relationship conflicts.

Extreme forms of relationship conflicts are workplace aggression and bullying. A meta-analysis of the research examining the relation of bullying and aggression to stress-related outcomes found that reports of supervisor, co-worker, and outsider aggression were associated with a variety of negative outcomes (Hershcovis & Barling, 2010; see table 6.7). Employees who reported aggressive acts expressed less satisfaction with their jobs, less commitment to their organizations, stronger intentions to leave the organization, and more psychological distress, emotional exhaustion, and depression. They also tended to report that they had engaged in more deviant behavior either against the supervisor and/or against coworkers. The effects of supervisor aggression were stronger than those for coworker and outsider aggression. Supervisor aggression also affected worker performance to a greater extent than coworker aggression. A meta-analysis of the research on bullying reported that anxiety, depression, physical health problems, post-traumatic stress, burnout, lower self-esteem, loss of sleep, and other reports of strain were associated with workplace bullying (Nielsen & Einarsen, 2012; see table 6.8). Also, those who reported bullying expressed intentions to leave their jobs, were less committed to the organization, less satisfied with their jobs, had poorer performance, and were absent from work more.

Self-reports of strain	Supervisor Aggression				Co-worker Aggression			
	k	N	$r_{uc}$	$r_c$	k	N	$r_{uc}$	$r_c$
Job Satisfaction	18	7242	-.32*	-.38	14	8421	-.20*	-.25
Affective Org. Commitment	15	5845	-.24*	-.28	10	4843	-.17*	-.20
Intent to turnover	16	7474	.26*	.30	12	6361	.20*	.23
Psychological distress	5	3406	-.25*	-.28	5	3406	-.19*	-.21
Emotional exhaustion	5	1482	.30*	.35	3	425	.25*	.31
Depression	8	2752	.24*	.26	8	4748	.18*	.24
Physical well being	12	5455	-.15*	-.20	11	3131	-.20*	-.24
Interpersonal deviance	11	3692	.29*	.34	10	5230	.38*	.47
Organizational deviance	11	4908	.34*	.39	7	2939	.25*	.29
Performance	6	3503	-.15*	-.17	2	4745	-.07	-.09

k= number of correlations; N = number of participants;  $r_{uc}$  = sample size weighted uncorrected correlation; Mean observed correlation;  $r_c$  = corrected correlation;  
 \*confidence interval for correlation excludes zero.

Table 6.7: Relation of Strain to Co-Worker and Supervisor Aggression

Self-Reported Symptoms	k	N	$r_{uc}$
Mental Health Problems	33	30,785	.34*
Somatization	11	17,196	.28*
Physical Health Problems	11	34,941	.23*
Post-traumatic Stress	6	1,229	.37*
Burnout	10	4,914	.27*
Self-esteem (core self-evaluations)	5	3,941	.07
Sleep	4	14,584	-.10
Strain	7	6,629	.31*

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted uncorrected correlations; \* confidence interval for correlation excludes zero.

Table 6.8: Correlations of Employee Self-Reports of Bullying and Well-Being Related Outcomes.

## Organizational politics

Related to interpersonal problems are the organizational politics that most workers experience at some point in their careers. A meta-analysis of the findings of 24 studies



involving 8,998 participants reported a corrected correlation of .45 and an uncorrected correlation of .34 between self-reported stress and perceptions of organizational politics (Miller, Rutherford and Kolodinsky, 2008; see table 6.9). The measure of perceived organizational politics (POP) contains items such as “People in this organization attempt to build themselves up by tearing others down”, “Telling others what they want to hear is sometimes better than telling the truth”, and “The stated pay and promotion policies have nothing to do with how pay raises and promotions are determined.” The more people reported that politics were part of organizational life, the more they reported that they experienced work stress. These findings were supported in another recent meta-analysis (Bedi & Schat, 2013).

Self-reports of strain	k	N	$r_{uc}$	$r_c$
Job satisfaction	35	12,7333	-.40*	-.45
Job Stress	24	8998	.34*	.45
Turnover intentions	24	7083	.35*	.44
Org. commitment	25	7237	-.37*	-.41
Job performance	20	6949	-.10	-.11

k= number of correlations; N = number of participants;  $r_{uc}$  = sample size weighted; Mean observed correlation;  $r_c$  = corrected correlation; \* = confidence interval for correlation excludes zero.

Table 6.9: Correlations of Self-reports of Organizational Politics with Stress-Related Responses

### Organizational injustice

As discussed in the chapter on motivation and work-related attitudes, employees who perceive injustice experience tension. Such tension is a source of motivation and dissatisfaction and can also create stress. Some indication of this is a meta-analysis showing that perceptions of procedural, distributive, and interactional injustice were associated with negative affect (Barsky & Kaplan, 2007; see table 6.10). Supervisors can do much to either ameliorate or exacerbate the effects of perceived injustice on worker stress. A demonstration of this was provided in a quasi-experiment conducted with 467 nurses in four hospitals (Greenberg, 2006). In two of the hospitals a change in policy resulted in a reduction of pay for the nurses whereas in the other two the pay policy and

level of pay did not change. Self-reports of insomnia were greater among the nurses whose pay had been reduced, presumably as the consequence of the perceived unfairness in the change in policy. The supervisors of about half of the nurses in each hospital underwent eight hours of training in how to ensure fairness in interactions with subordinates whereas the other half were not trained. The training included instruction in how to treat subordinates with politeness, dignity, and respect, providing emotional support, avoiding intimidation, manipulation, and degradation, providing complete and accurate explanations, communicating with accuracy, and making one's self accessible. As seen in figure 6.7, training supervisors in how to treat subordinates fairly apparently buffered the negative consequences of the pay cuts.

Self-reports of affect	k	N	$r_{uc}$	$r_c$
Self-reported positive affect				
Distributive Justice	9	1,606	.27	.31
Procedural Justice	8	1,426	.32	.35
Self-reported negative affect				
Distributive justice	10	2,184	-.22	-.25
Procedural justice	14	2,750	-.21	-.24
Interpersonal justice	2	718	-.37	-.43

k= number of correlations; N = number of participants;  $r_{uc}$  = sample size weighted; Sample size weighted mean uncorrected correlation;  $r_c$  = corrected

Table 6.10: Correlations of Self-Reports of Justice with Positive and Negative Affect

Although supervisors can help ease the pay of injustice, they are also the potential victims of unfair treatment. In one study, supervisors who experienced injustice experienced stress, and this stress appeared to trickle down the organization to their subordinates (Rafferty, Restubog & Jimmieson, 2010). Supervisors who perceived that they were victims of procedural and distributive unfairness were more likely to suffer psychological distress and exhibit abusive supervision of their subordinates. In turn, their subordinates were more likely to also suffer psychological distress, express lower self-esteem, and report insomnia.

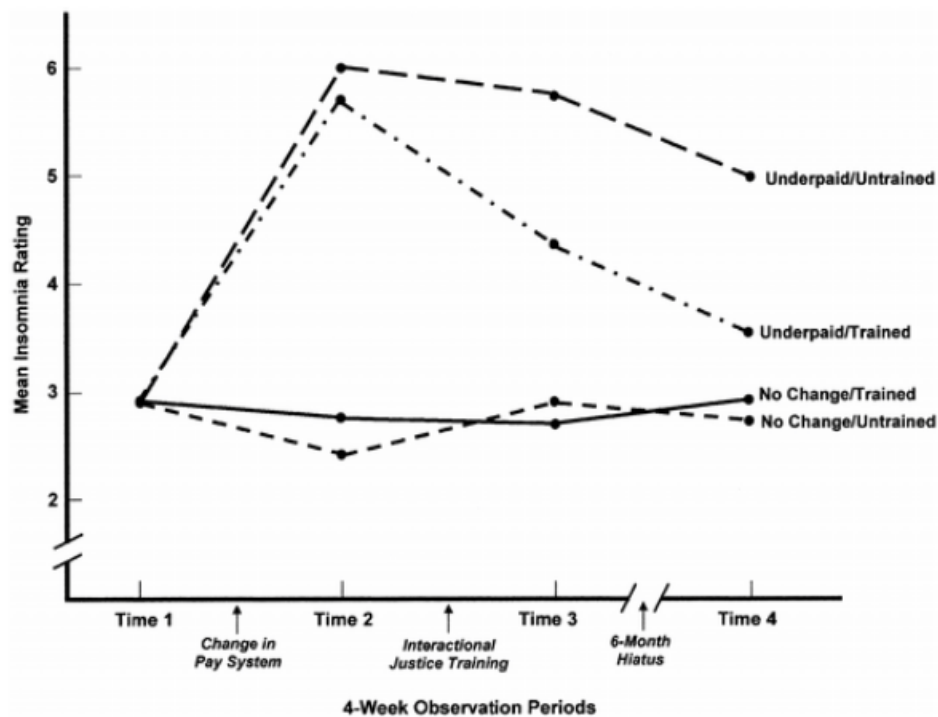


Figure 6.7: Mean Insomnia Ratings Over Time (4 – Week Observation Periods) as a Function of Pay and Interactional Justice Training

### Unfair discrimination

This is a specific type of injustice based on group membership. Individuals can experience discrimination on the basis of an unfair allocation of resources (e.g., one group is more likely to receive promotions, salary increases, and attractive job assignments than another group), an unfair use of procedures (e.g., one group is allowed to participate in decisions while another is not), or unfair treatment (e.g., harassment, social rejection, verbal and nonverbal behavior conveying disapproval). Take, for example, the experiences of this woman who works in sales.

*L. is 55, has raised six children single-handedly, and still supports one. She is a senior sales coordinator for a manufacturing firm in Cleveland, a job that she does meticulously. "It's such a sexist company," she says. "Work is a constant putdown. The men say things like, 'We need fuss-budgets like you around — I mean old maids.' I can hardly tolerate the men's language, or their physical advances towards the younger women. I have to defend myself all day long. And I look out for a younger co-worker who gets very upset -- but she never talks back to them, so I end up fighting her battles as well as mine." (Working women's education fund, 1981, p. 14)*

Even in the absence of overt discrimination, individuals can sense that their supervisors and peers hold prejudicial beliefs and stereotypes. For instance, racial minority persons may not feel that they are discriminated against with regard to wages, job assignments, promotions, and evaluations, but may still feel that supervisors and other employees hold prejudicial attitudes and stereotypes.

Similar to the effects of other stressors, discrimination, whether real or imagined, sets in motion the physiological responses associated with the stress response as the victim prepares physically and mentally react to what they perceive as a threat (De Castro, Gee, & Takeuchi, 2008). Richman, Bennett, Pek, Siegler, & Williams, 2007). When experienced over a prolonged period of time, discrimination can have the same detrimental effects on health and well-being as other stressors. Based on a meta-analysis of over 100 studies conducted between 1987 and 2007, Pascoe and Richman (2009) found that self-reports of being discriminated against were related to (1) heightened physiological and psychological stress responses, (2) more unhealthy behaviors (alcohol use, smoking and missed doctor appointments, (3) less healthy behaviors such as getting enough sleep and exercise, and eating a healthy diet), (4) poorer physical health (e.g., blood pressure, diabetes, pelvic inflammatory disease, cardiovascular disease, nausea, pain, headaches), and (5) poorer mental health (e.g., reports of depression).

Other research has shown the negative impact of discrimination on health and well-being for discrimination on the basis of sex, race, and sexual orientation. Female employees who reported more incidents of gender harassment and/or discrimination, report more physical symptoms of poor health (Pavalko, Mossakowski & Hamilton, 2003; Raver & Nishii, 2010; Goldenhar, Swanson, Hurrell, Ruder & Deddens, 1998) and higher psychological distress (Ajrouch, Reisine, Lim, Sohn, & Ismail, 2010; Flores, Tschann, Dimas, Pasch, & deGroat, 2010). Using a more objective measure of health, another study found that reports of sexual harassment were positively related to elevated systolic blood pressure among women workers (Krieger, Chen, Waterman, Hartman, Stoddard, Quinn, Sorensen & Barbeau, 2008). Employees who perceive that they were discriminated against on the basis of race and ethnicity, report more physical symptoms of poor health (DeCastro, Gee & Takeuchi, 2008; Fujishiro, 2009; Raver & Nishii, 2010; Schneider, Hitlan, & Radhakrishnan, 2000), more job stress and tension (Buchanan & Fitzgerald, 2008; Wated & Sanchez, 2006), higher blood pressure (Din-Dzietham, Nemhard, Collins & Davis, 2004; James, 1994; Richman, Pek, Pascoe, & Bauer, 2010), and lower mental health (Buchanan & Fitzgerald, 2008). Finally, lesbian, bisexual, and transgendered employees who report that were discriminated against on the basis of sexual orientation over the previous year report more physical symptoms of illness and less satisfaction with their health (Waldo, 1999).

### Downsizing and job insecurity

Once upon a time the typical employee spent most of his or her working career in only a few organizations, but in recent decades employees are forced to change jobs, employers, and even careers due to layoffs and firings (euphemistically called reductions in force,

downsizing, or right-sizing). Laying off workers is a quick and relatively easy way for corporate management to reduce costs and to convince shareholders that something is being done to improve profits. Despite the frequency of downsizings in corporations, however, there is evidence that downsizing is a poor business strategy (Cascio, 1999). It is also a major stressor that has serious consequences for the mental and physical health of employees. It is an obvious stressor for those who are the targets and who are unemployed. It also serves as a stressor by creating problems for the survivors of the downsizing unemployment and increasing job insecurity.

1. The effects of unemployment. The evidence is consistent in showing that unemployment is associated with psychological distress (Paul & Moser, 2006, 2009; Eliason & Storrie, 2009), poorer physical health (Herbig, Nico, & Angerer, 2013), increased alcohol consumption (Temple, Fillmore, Harka, Johnstone, Leino, & Mctoyoshf, 1991), traffic accidents (Leigh & Waldon, 1991), lower subjective well-being (Luhmann, Hofmann, Eid & Lucas, 2012; Luhmann & Eid, 2009), and divorce (Luhmann, Weiss, Hosoya, & Eid, 2014). Luhmann and Eid (2009) followed a sample of German workers over three periods of unemployment and reemployment. Relative to the pre-unemployment levels, life satisfaction fell after unemployment. Although life satisfaction rose after each reemployment, life satisfaction declined and never returned to the levels reported in the pre-unemployment baseline period. These fascinating but disturbing findings suggest that unemployment has residual negative effects that are not readily reversed by finding employment.

2. The effects on the survivors. Downsizing also increases the stress for employees who survive the layoffs. One obvious source of stress is the increased workload on those who are left. Take, for example, the following comment of a retail worker who survived one firm's downsizing:

*We work in a really stressful situation ... we're so short-staffed ... Just for example in the last couple of years ... we've lost 100 [workforce] hours a week ... The assistants now have to take upon themselves to do all those extra hours' work in the same time, ... and still [expected to appear] happy and cheerful and encouraging for... customers ... which is a great deal of stress in itself ... Boyd, Tuckey, and Winefield (2014, p. 56).  
When [a staff member] goes on a break and say there's five registers in one area and [only] one [sales assistant] and no-one in the fitting rooms... then you've got to deal with customer hostility because they're not getting the service that they would like (Boyd, Tuckey, & Winefield, 2014, p. 56)..*

In addition to the increased workload, there are other negative consequences for the survivors of downsizing that are less obvious. In one survey involving 13,683 U. S. employees, survivors of layoffs were compared to employees whose units or firms had not downsized (Maertz, Wiley, LeRouge & Campion, 2014). Compared to those who had not experienced layoffs, those who survived layoffs perceived the organization as less effective, were less committed to their organizations, and expressed less job security and stronger intentions to leave the organization. In one survey, over 2000 employees were asked to report on whether over the last five years they had experienced layoffs of close

friends or coworkers, had received a warning of possible layoffs, or had been laid off and then rehired (Grunberg, Moore & Greenberg, 2001). It was found that workers having contact with other workers who had been downsized reported more job insecurity, depression, more physical symptoms of poor health, more eating changes, and more drinking.

3. The effects of job insecurity. Although actual job loss and surviving a layoff are traumatic experiences, perhaps just as stressful is the threat of possible job loss. As a consequence, job insecurity is rampant. Not only does the threat of pending layoffs serve as a major stressor, but also those who survive a layoff also experience stress as they ponder whether they are next on the list to be fired. It is clear that workers today worry about losing their jobs to a greater extent than workers in the past. Job security has become an increasingly important factor to those looking for work (see “Job security a top concern among new grads” In

<http://www.businesswire.com/news/home/20120502005562/en/Job-Security-Top-Concern-Grads-SimplyHired.com-Reports#.VCXENOeR-To>).

Take the example of Allen:

*“Alan has a job. But not in a school or a non-profit. In fact, he can’t even score work as a publicist, or even a position at a local bookshop or music store. Since getting his degree in 2011, Alan has bounced from one temporary assignment to the next, always aware the next quarterly budget could send him packing. The specter of \$40,000 in student debt is his constant companion.*

*When Alan decided to go the college route, his parents and friends cheered. Little did they know that a train wreck was coming. During his second week as a full-time college student, the economy crashed. Still, Alan worked hard. He made the Dean’s List. He won awards. “I wasn’t some goofball, flaky student,” he says. Now he has a constant sense of failure.*

*The temporary office jobs he lands offer no real path to full-time employment. Tied to budget decisions, they frequently vanish with little or no warning. “You begin to hear rumors that your job is going to be cut,” Alan says. “People get passive-aggressive. It’s stressful.” (Parramore, 2012).*

A meta-analysis of the potential antecedents of self-reported job insecurity found organizational and personal factors associated with insecurity (Keim, Landis, Pierce & Earnest, 2014; see table 6.11). The more employees reported role ambiguity, role conflict, and poor organizational communication, and the more change occurring in the organization, the more self-reported insecurity. Also, employees with an external locus of control were more insecure. Younger workers were more insecure, but the correlation in this case was very small. Finally, blue-collar and temporary workers were more insecure than white-collar and full-time, permanent workers. The results of this meta-analysis are reported in table 6.11.

Predictor	k	N	$r_{uc}$	$r_c$
Subjective predictors				
Internal Locus of control	5	1,530	-.19*	-.25
Role ambiguity	14	6,117	.23*	.28
Role Conflict	12	4,261	.16*	.20
Organizational communication	8	5,460	-.20*	-.24
Objective predictors				
Organizational change	9	5,389	.15*	.18
Age	45	33,739	-.06*	-.07
Gender: female (1) vs male (0)	39	35,643	-.03	-.03
Education	21	20,872	-.03	-.04
Job type:blue collar (1) vs white (0)	11	10,496	.18*	.19
Temporary (1) vs Permanent (0)	22	24,000	.20*	.29
Part-time (1) vs Full-time (0)	11	11,726	.04	.05

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = confidence interval for correlation excluded zero.

Table 6.11: Predictors of Self-Reported Job Insecurity

Predictor	k	N	$r_{uc}$	$r_c$
Job Satisfaction	50	28,885	-.32*	-.41
Job involvement*	4	516	-.30*	-.37
Organizational commitment	30	8,681	-.29*	-.36
Trust	8	2,994	-.40*	-.50
Physical health	19	9,704	-.12*	-.16
Mental health	37	14,888	-.19*	-.24
Performance	12	2,669	-.16	-.20
Turnover intention	26	11,247	.23*	.28

k= number of correlations; N = number of participants;  $r_{uc}$  =sample size weighted uncorrected correlations; mean observed correlation;  $r_c$  = corrected correlation; \* = confidence interval for correlation excluded zero.

Table 6.12: Correlations of Self-Reported Job Security with Potential Outcomes.

In another meta-analysis (Sverke, Hellgren and Naswall, 2002; see table 6.12), respondents who reported more insecurity also reported lower job satisfaction ( $r = .317$ ), job involvement ( $r = -.296$ ), organizational commitment ( $r = -.286$ ), and trust in management ( $r = .401$ ). Also, the more insecure they were, the poorer their physical health ( $r = -.121$ ), mental health ( $r = -.189$ ) and the more they intended to leave their organization ( $r = .226$ ). These were all uncorrected correlations and once corrected for

attenuation, the estimates of the relations were even stronger. The corrected and uncorrected correlations are reported in table 6.12.

### Nonwork stressors

An intriguing question that has attracted an increasing amount of research in recent years is whether work, environmental, and organizational stressors interact with nonwork stressors. Most people have experienced at one time or another a deterioration in performance at work or school as a consequence of personal problems, such as financial pressures, illness of a family member, or the break-up of a relationship. Consistent with these experiences, the research on nonwork stressors has shown that factors outside of work can influence the stress that employees feel at work as well as their general well-being and work productivity.

Stressful life events, daily hassles, and daily uplifts. Work events are only one type of event that can cause stress, so it is useful to explore other events and the extent to which they evoke stress. Holmes and Rahe (1967) were interested in the relative impact of life stressors and developed the Social Readjustment Scale consisting of the events listed in table 6.13. These events were rated on perceived impact and are listed in the order of their impact. It is interesting to note that several of the most stressful events were associated with work (e.g., fired at work, retirement, business readjustment). Respondents identifying more high impact events occurring in their lives were hypothesized to experience more illness as a consequence of the stress induced by these events. To take the Social Readjustment Scale go to this link:

<http://www.stressaffect.com/Stressful-Life-Events-List.html>.

Although the life events approach is appealing in its simplicity, research has shown that total life events are not very good predictors of health problems. Stress researchers such as Kasl (1981) have discussed several reasons for the scale's poor predictive validity. Much of the life events research is retrospective in that people are asked about these events and their health after the fact. However, disease often develops in stages over time. If a person is not followed over time (longitudinally), researchers cannot determine whether a health problem already existed or occurred after the events. Researchers need to establish individual health status, document life changes, and then determine what health decrements follow. According to Kasl, life events are also not separable from a person's environment and stage of life. For example, alcoholics experience many life events, and the elderly experience relatively few life events. (One aspect of aging is that as people age, they experience fewer changes.) In the same vein, when is no change more stressful than change? For example, for many married couples, not experiencing pregnancy or the gain of a new family member is stressful.



STRESSFUL LIFE EVENTS IN ORDER OF MAGNITUDE OF STRESS
Death of spouse
Divorce
Marital separation
Jail term
Death of close family member
Personal illness or injury
Marriage
Fired at work
Marital reconciliation
Retirement
Change in health of family member
Pregnancy
Sex difficulties
Gain of new family member
Business readjustment
Change in financial situation
Death of close friend
Change to different line of work
Change in number of arguments with spouse.
Mortgage over \$100,000
Foreclosure of mortgage or loss.
Change in responsibilities at work
Son or daughter leaving home.
Trouble with in-laws
Outstanding personal achievement
Spouse begins or stops work.
Begin or end school
Change in living conditions
Revision of personal habits.
Trouble with boss
Change in work hours or conditions
Change in residence
Change in schools
Change in recreation
Change in church activities
Change in social activities
Mortgage or loan less than \$100,000
Change in sleeping habits
Change in number of family get-togethers
Change in eating habits
Vacation
Christmas

Table 6.13: Stressful Life Events in Order of Perceived Stressfulness of the Event.

Despite the issues surrounding the use of major life events to predict strain, the consensus is that stressful life events provide the stress researcher with a small, but important, link between stressors and illness. An increasing amount of research suggests that another

factor to consider in addition to major life events are the daily hassles that people experience such as misplacing one's car keys, an unexpected work assignment, an argument with one's spouse, or a malfunctioning oven (DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982). These relatively small events can accumulate and have a major impact on the health and well-being of employees.

Table 6.14 lists the ten most frequently mentioned hassles and uplifts in a sample of middle aged adults. Similar rankings were found in surveys of college students and medical professionals. As one might expect, the frequency with which respondents reported experiencing daily hassles and uplifts was related to self-reports (Ivancevich, 1986).

Ten Most Frequent Hassles and Uplifts	
Item <sup>a</sup>	% times checked
<b>Hassles</b>	
1. Concerns about weight	52.4
2. Health of a family member	48.1
3. Rising prices of common goods.	43.7
4. Home maintenance.	42.8
5. Too many things to do.	38.6
6. Misplacing or losing things.	38.1
7. Yard work or outside home maintenance	38.1
8. Property, investment, or taxes.	37.1
9. Crime	37.1
10. Physical appearance	35.9
<b>Uplifts</b>	
1. Relating well with your spouse or lover.	76.3
2. Relating well with friends.	74.4
3. Completing a task.	73.3
4. Feeling healthy	72.7
5. Getting enough sleep.	69.7
6. Eating out.	68.4
7. Meeting your responsibilities.	68.1
8. Visiting, phoning, or writing someone.	67.7
9. Spending time with family.	66.7
10. Home (inside) pleasing to you.	65.5

<sup>a</sup> Items are those most frequently checked over a period of 9 months. The percentage of times checked figures represent the mean percentage of people checking the item each month averaged over the nine monthly administration.

Table 6.14: Top Ten Most Frequently Mentioned Uplifts and Hassles

In one of the earliest studies, Kanner, Coyne, Schaefer and Lazarus (1981) identified 117 hassles and 135 uplifts (pleasurable events that boosted well of stress-related outcomes. Interestingly, daily hassles and uplifts were better predictors of stress-related outcomes than major life events. These findings were later confirmed in a national survey of over 1,000 adults (Serido, Almeida & Wethington, 2004; see table 6.14). The investigators found that the chronic experience of stressors combined with daily hassles to influence psychological distress. Moreover, it appears from this research that chronic stress experienced at home may carry over to the workplace in the form of daily work hassles and thereby exacerbate the negative impact of family related stress.

The relative influence of work and nonwork. Researchers have investigated work-nonwork relationships from three general perspectives. The first is called the spillover model of stress. Here the problems outside of work spill over into one's work life. Difficulties at work (for example, receiving a poor performance review) can also affect other aspects of life, such as the ability to concentrate on school assignments or the relation with one's spouse. The research on the effects of stress at work and in the family provides support for a spillover model in which stress at work can affect stress in the family and stress in the family can affect stress at work. One meta-analysis of this literature reported that job stress was associated with work that interfered with family life while family stress was associated with work that interfered with family life (Ford, Heinen & Langkamer, 2007).

The impact of work role stress (i.e., ambiguity, conflict, and overload) and interpersonal conflict at work on work interference with family was considerably stronger than the effect of family stress on family interference with work. For instance, the corrected correlation of reports of job stress and reports of work interfering with family life was .56, indicating that as job stress increased, employees were more likely to perceive work as interfering with their family life. The corrected correlation of reports of family stress and reports of family interfering with work was .34, indicating that as family stress increased, employees were more likely to report family life interfering with work life. According to the authors, these findings suggest “work stress crosses over into the family domain in its effect on domain-specific satisfaction more than family stress crosses over into the work domain. The asymmetry found here could be a function of stronger spillover from work to family than from family to work on these variables and/or of the poorer measurement of stress in the family domain” (p. 68).

The second is the compensation model of stress, where one environment compensates for deficiencies in the other. For example, the person who has marital conflicts may immerse himself in projects at work; the worker who fears being fired may concentrate instead on her family activities. The third is independence, where problems in one environment do not affect the other. For example, personal problems, such as illness of a loved one, do not affect individual work effectiveness (and vice versa). Some evidence supports all three perspectives (Kabanoff, 1980), but the preponderance of evidence supports the spillover perspective (Bacharach, Bamberger & Conley, 1991; Greenhaus & Parasuraman, 1986).

Most of the research concerning the relation between work and nonwork stress has focused on the problems of dual career couples, or a situation where both partners have a job or career outside the home. Their lifestyles often become a juggling act to balance the needs of both home and work simultaneously. Achieving this balance becomes even more difficult when children are involved. For example, job demands may require both partners to work late on a certain day. The dilemma becomes one of determining who will watch the children and who will work. Because these types of situations tend to occur frequently, the professional advancement of dual career couples can suffer.

Three general classes of stressors affect most dual-career couples (Gupta & Jenkins, 1985). The first (discussed above) occurs because of conflicts between personal and social and/or job-related expectations. The second arises from ambiguity about effective role-related behaviors. That is, role ambiguity occurs because dual-career couples do not know how to satisfy all of their competing demands. The third involves the extreme overload, or having too much to do, that arises from trying to handle simultaneous personal, family, and work demands. Although the plight of the dual-career couple seems pretty dismal, there is some compensation. These couples often report great satisfaction with their marriages, and children of dual career couples show more independence and flexibility.

#### Points to ponder

1. What other stressors can you identify not covered in the list discussed in this text?
2. Identify some of the most stressful occupations and the factors in these occupations that make them so stressful.
3. Is it important to you that your career is low on stress? Why or why not?
4. The research suggests that the effects of work stress on family stress are stronger than the effects of family stress on work stress. Why do you think this is true?
5. Of the various role stresses, role ambiguity appears to show the strongest correlations with negative reactions such as tension and dissatisfaction. Do you think this is true in your own life? Why or why not?
6. What are the stressors that are most important for high level jobs such as managerial jobs? What are the stressors that are most important for lower level jobs such as manual or clerical work?

#### Strains: Work-related Consequences of Sustained Stress

As stated earlier, negative reactions to stressors are called strains. There are three primary types of strains. Physical strains are the bodily symptoms associated with chronic stress as headaches, coronary heart disease, upset stomach, fatigue, sleep disturbances, backaches, muscular pain, and ulcers. As mentioned at the beginning of this chapter, medical researchers, such as Walter Cannon and Hans Selye, conducted early stress research. Therefore, it is not surprising that health is an important strain measure in stress research. The review has already touched on research showing that stressors in the workplace are related to physical strains. Also discussed is the research showing physical strains associated with stressors. Rather than repeat what has already been discussed, the

focus is on two other strains frequently discussed as consequences of work-related stressors. Emotional strains such as anxiety, depression, dissatisfaction, lack of commitment, and burnout are the affective reactions to chronic stress that disrupt cognitive functioning and are injurious to the individual's sense of well-being and mental health. Behavioral strains are behaviors of the individual that result from chronic stress and can lead to physical and emotional strains such as drug abuse, overeating, or violence. In the work context behavioral strains would include behaviors that are potentially damaging to the organization as well such as absenteeism, low commitment and satisfaction, accidents, sabotage, and poor performance. Let us now examine each of these potential strains.

### Effects of stress on performance

The meta-analyses of the research examining the correlations between self-reported role stressors and job performance support the conclusion that stress has a negative relation with both self-rated and supervisor-rated job performance (Gilboa, Shirom, Fried & Cooper, 2008; see table 6.15). The relations among the various stressors (i.e., role ambiguity, role conflict, role overload, etc.) and performance were small but consistently negative. With increases in role ambiguity, conflict, overload, insecurity, and work-family conflict, the poorer the incumbent performed. This relationship held for a variety of different ways of measuring job performance including both objective, quantitative measures and subjective ratings by the employee and the supervisor. For most performance measures, role ambiguity had the strongest negative relations.

Predictor	k	N	$r_{uc}$	$r_c$
Role ambiguity	114	22,258	-.20*	-.24
Role conflict	112	23,400	-.08*	-.10
Role overload	40	8,298	-.06	-.08
Work-family conflict	12	3,435	-.10*	-.12
Job insecurity	11	2,912	-.14*	-.19
Environmental uncertainty	5	1,226	-.09*	-.11
Situational constraints	8	1,915	-.19*	-.24

K = number of correlations; N = number of participants;  $r_{uc}$  = sample size weighted mean uncorrected correlation;  $r_c$  = correlation corrected for artifacts; \* = confidence interval for correlation excluded zero.

Table 6.15: Correlations of General Performance with Work Demand Stressors

Although the research has shown that the relationship between stress and performance is negative (i.e., higher stress leads to lower performance) the relationship is not a large relationship and is often quite small. The reason that the research has not shown a strong

link between job-related stressors and behavioral outcomes probably reflects the complex relationship between stress and performance. The research has shown that on complex tasks increased stress may only harm performance at higher levels of stress. On simple and well-learned tasks stress actually leads to higher performance.

This effect is called the Yerkes-Dodson effect, after Robert Yerkes and John Dodson who found this interaction between task complexity and stress levels in research with non-humans. As shown in figure 6.8, there is an inverted U function in which performance increases with higher arousal on simple tasks up to high levels and then levels off. On complex tasks there is an inverted U function in which performance increases with increased arousal up to a moderate amount of arousal and then sharply declines at the higher levels of arousal. Arousal here refers to a general stress response, characterized by alertness or activation. For example, if a student were feeling extremely stressed and took a calculus exam, the score was probably lower than could have achieved if there was less stress. However, if the student were totally relaxed, even lethargic, when taking the exam, the student probably would not achieve the highest possible score either. This is why workers who perform fairly dull or monotonous tasks are often aided by the addition of a stressful stimulus, such as loud noise or music. (Refer also to the earlier discussion on noise as a blue-collar stressor.) The noise or music can increase the worker's arousal level to the point where performance actually increases.

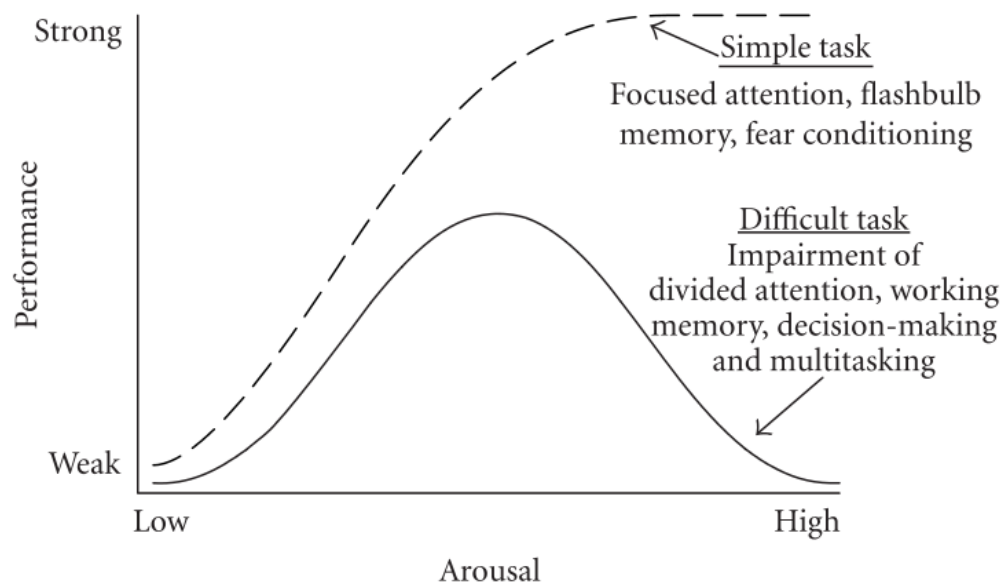


Figure 6.8: The Yerkes-Dodson Effect.

These relationships conjure up all types of interesting possibilities where stressors are to enhance performance. The addition of a stressor such as noise might increase performance on assembly line jobs (which are often monotonous and repetitious), and when workers are suffering from a lack of sleep, which is frequently the case for shift or night workers. Unfortunately, the optimum stress level associated with peak performance

varies with people and tasks, so it is really difficult to specify how much of any stressor will produce a particular level of performance for a specific individual.

The research showing that stress can actually increase performance on simple tasks and only harms performance at the highest levels of stress was conducted with short-term tasks in laboratory situations. The negative effects of stress on performance are likely to become more apparent, perhaps even on simple tasks, when the stress is experienced over long periods of time and is chronic rather than short-term.

In addition to the direct effects of stress on performance, there is also an indirect effect in which stress harms the health of the worker and, in turn, health adversely affects performance. Indeed, the research shows that a mentally and physically unhealthy worker performs more poorly on the job than a healthier worker performing worker (Ford, Cerasoli, Higgins & Decesare, 2011). The negative impact of poor health on performance is stronger for mental health but the research is consistent in showing that the negative impact of poor health occurs in both the mental and physical domains. We cannot conclude that these relationships are necessarily due to stress, but they do suggest that stress adversely affects health and, as a consequence, performance may suffer as well.

#### Effects of stress on unsafe work behaviors and accidents

Higher demands and fewer resources are associated with a higher frequency of workplace accidents and injuries. One example is unsafe driving. Research has demonstrated that drivers who are under stress are more likely to drive unsafely and have accidents. There are often direct effects of stressors and strain on accidents as a result of cognitive interference. The driver who experiences high stress may not pay sufficient attention perhaps as the result of ruminating about problems at work or at home. Consequently, the driver may fail to notice the red light or the oncoming car or may stray into the other lane.

The findings of one meta-analysis demonstrate how burnout mediates the effects of work stressors on workplace accidents (Nahrgang, Morgeson & Hofmann, 2011; see table 6.16). The findings suggest that employees can experience burnout as the result of exhausting their mental and physical resources in coping with a risky and dangerous work environment. The employee who burns out is emotionally exhausted and is less diligent in monitoring his or her environment for hazards or may simply lack the motivation to avoid risky and hazardous situations. Thus, high work demands lead to burnout, and burnout leads to unsafe behavior and accidents.

	Accidents and Injuries				Near Misses				Unsafe Behavior			
Job Demands	k	N	r <sub>uc</sub>	r <sub>c</sub>	k	N	r <sub>uc</sub>	r <sub>c</sub>	k	N	r <sub>uc</sub>	r <sub>c</sub>
Risks and hazards	21	28,315	.11*	.13	10	27,807	.29*	.43	16	6,232	.09*	.12
Physical demands	18	24,104	.07*	.09	13	5,680	.10*	.13	22	9,777	.19*	.28
Complexity	5	1,190	.08*	.11	3	1,054	.15*	.19	7	3,620	.30*	.43
Job Resources												
Knowledge	28	31,491	-.07*	-.08	12	5455	-.12*	-.16	23	13,121	-.20*	-.25
Autonomy	6	23,767	-.07*	-.09	11	3692	-.23*	-.35	4	1,017	-.14*	-.18
Social support	8	3,218	-.37*	-.44	11	4908	-.28*	-.38	8	16,480	-.25*	-.35
Leadership	28	17,849	-.12*	-.14	6	3503	-.18*	-.22	14	9,275	-.23*	-.32
Safety Climate	45	19,295	-.19*	-.24	23	31,484	-.29*	-.38	34	28,307	-.30*	-.45

K = number of correlations; N = number of participants; r<sub>uc</sub> = mean weighted correlation; r<sub>c</sub> = correlation corrected for artifacts; \* = confidence interval for correlation excluded zero.

Table 6.16: Correlations of Employee Reports  
of Stress and Strain with Accidents and Unsafe Behavior

### Effects of stress on work-related attitudes and OCBs

The experience of stress appears to negatively affect work-related attitudes and this detrimental effect on attitudes in turn appears to harm organizational citizenship behaviors (OCBs). Remember that OCBs are those positive contributions an employee makes to the work place that are not required in the job description and are not part of the core tasks of the job. In one meta-analysis, reports of emotional distress were associated with lower incidence of organizational citizenship behavior (OCB) (Chang, Johnson & Yang, 2007; see table 6.17). Also, the type of OCB moderated the relation. The negative impact of emotional distress was somewhat stronger for citizenship behaviors aimed at helping the organization than for OCBs aimed at helping individuals. In another meta-analysis, employees experiencing role conflict, role ambiguity, and role overload were less likely to engage in OCBs (Eatough, Chang, Miloslavic & Johnson, 2011; see table 6.17). The relation was larger for role ambiguity than for either conflict or overload. In this particular meta-analysis, the researchers concluded that job satisfaction mediated the relationship. In other words, role stress lowered job satisfaction, and lower satisfaction led to fewer OCBs. As in the case of absenteeism and turnover, the effects of stress on job satisfaction appears as a pathway from stressor to outcome.



Self-reported Stressor	k	N	$r_{uc}$	$r_c$	Source
Role conflict	22	6,257	-.12*	-.16	Eatough et al, 2011
Role overload	19	6,022	-.05	-.06	Eatough et al, 2011
Role ambiguity	24	5,756	-.13*	-.15	Eatough et al, 2011
Emotional Strain	52	16,025	-.13*	-.16	Chang et al (2007)

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = confidence interval for correlations excluded zero.

Table 6.17: Correlations of Self-reports of Stressors with Organizational Citizenship Behavior (OCB)

### Effects of stress on burnout

Burnout is a type of workplace strain that has both behavioral and attitudinal components and has been the focus of considerable attention in recent years is burnout. The reader has probably experienced this strain, particularly after final exam week. The term burnout has received attention in the media, and is often used generally in reference to the frustration, exhaustion, and cynicism experienced by human service professionals, such as policemen, social workers, and teachers. Why does burnout most often affect human service professionals? Researchers believe that these jobs frequently require workers to accommodate the extreme needs and dependencies of clients, patients, or students. These extreme demands are emotionally debilitating for the worker.

In the late 1970s, the psychological and medical community began to realize that the array of symptoms called burnout was a serious health problem beyond the normal experience of stress at work. In fact, burnout technically consists of three specific types of stress responses, usually found in professionals who work in people-intensive jobs. The three types of responses that define burnout are (Jackson, Schwab & Schuler, 1986):

1. Emotional exhaustion, or feelings of being "drained" or "used-up", unable to face a day's work, totally unenthusiastic.
2. Depersonalization, or the act of putting psychological distance between oneself and others, creating feelings of callousness and cynicism.
3. The feeling of decreased personal accomplishment, or the feeling of not living up to former goals and expectations, wasted efforts.

These three dimensions of burnout paint a picture of a worker who brings no enthusiasm to his or her work, who treats others in a cynical and calloused manner, and who seems to accomplish little regardless of the effort expended. The inevitable longer-term responses are decreased worker motivation and performance (Taris, 2006). Specific organizational outcomes are that the clients and customers receive poor service, relationships with coworkers suffer, and job involvement decreases.

The most widely used measure of burnout is the Maslach Burnout Inventory (Maslach & Jackson, 1981). This questionnaire consists of items that measure each of the three dimensions of burnout, emotional exhaustion, depersonalization, and decreased personal accomplishment. Research on burnout has been generally supportive of the three dimensions of burnout and the negative consequences associated with them (Jones & Dubois, 1987). Jackson, Turner and Brief (1987) reported that, although the three dimensions of burnout were each related to different outcomes, all three were associated with feelings of decreased organizational commitment. Another study (Firth & Britton, 1989) found that emotional exhaustion was related to increased absenteeism, and depersonalization to leaving the organization. Because the experience of burnout is yoked to specific occupational stressors, one of the side benefits of burnout research has been the accumulation of knowledge about the stressors and strains in numerous occupational groups. For example, burnout research has been conducted with nurses (Firth & Britton, 1989; Garden, 1989), physicians (Lemkau, Rafferty, Purdy & Rudisill, 1987), teachers (Russell, Altmaier & Van Velzen, 1987), lawyers (Jackson, Turner & Brief, 1987); and managers (Garden, 1989).

High demands on the employee in and a lack of resources provided to the employee to meet these demands are the two major causes of burnout. One meta-analysis of the burnout literature reported that an increase in resources was associated with less burnout while an increase in demands was associated with more burnout (Crawford, LePine & Rich, 2010). Demands that were associated with burnout included increased job responsibility, time urgency, and workload as well as demands that came in the form of hindrances such as organizational politics and bureaucratic hassles. The meta-analysis also suggested, however, a somewhat complex relationship in which the degree to which the employee was engaged or involved in the job (remember job involvement from the previous module?).

Figure 6.9 summarizes the complex inter-relations among engagement, demands, resources, and burnout. The more employees reported that demands in the job were challenging and the more they reported that they had resources available for meeting these demands, the more engaged they were in their jobs. So far so good. The more that employees reported that there were demands on them that were hindrances, the less engaged they were in their jobs. Also, not surprising. Here's where it gets interesting. To the extent that employees were engaged in their work, the less burnout they reported.

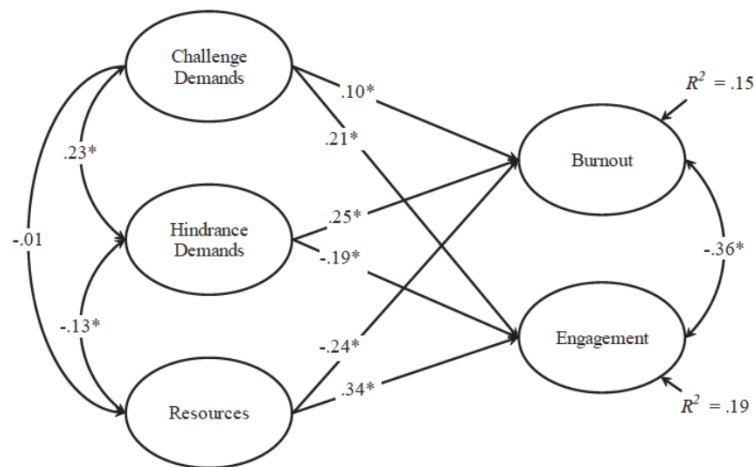


Figure 6.9: Relations of challenge demands, hindrance demands, and resources to burnout and engagement at work.

### Effects of stress on work place violence

One other potential outcome of work stress is violence and aggression. Check out the newspaper account of one such incident. This particular incident was one of several incidents that occurred in 1990s in which postal employees committed homicide against their fellow employees out of apparent rage and frustration with their employment situation. As a result, the term "going postal" entered the language. This is unfortunate in that there is no evidence that postal workers are any more or less prone to workforce violence than other types of employees. Nevertheless, these tragic incidents brought attention to the role of workplace stress in job-related violence.

Workplace violence is a relatively rare occurrence but it is interesting to note that a substantial proportion of deaths at work are due to homicide. The experience of stress appears to play a role. An examination of the profile of workplace violence perpetrators reveals several interesting and disturbing relationships. For one, as in the case of all other aggressive and violent behavior, men are more prone to workplace violence than women. Relatively young men are more often the perpetrators than older men, and those who have access to guns are more likely to perpetrate violence than those who do not possess or have access to guns. The most interesting parts of the profile are the antecedents of the violent acts. Those who commit such acts often appear as real or imagined victims of injustices that induce stress and attempts to correct these perceived injustices. The violence is the culmination of what the perpetrators perceive as a lack of redress. Exercise caution in interpreting these findings. Because workplace violence is such a low base-rate phenomenon (meaning it is a rare event), it is difficult to research in any rigorous fashion. Thus, the profile presented here is highly subjective. Nonetheless, it seems clear that work stress can cause some employees in some situations to lash out at others in destructive and aggressive ways. In the extreme this could mean committing injurious acts.

# Post offices too stressful? Inquiry is urged

FROM BLADE STAFF AND WIRE REPORTS

ROYAL OAK, Mich.—U.S. Postmaster General Anthony Frank yesterday called for an investigation into a series of deadly shootings at post offices in the last few years and suspended the man in charge of the Royal Oak post office, saying Daniel Presilla was a dictatorial manager.

"Maybe there's been too much change too soon" brought on by financial cutbacks that burdened both workers and their managers across the system, Mr. Frank told a news conference here.

He spoke 24 hours after a former letter carrier went on a rampage at the post office, killing four people and himself.

Thomas McIlvane, 31, of Oak Park, Mich., who had been fired from his letter carrier's job last year, died early yesterday from a self-inflicted gunshot wound. Police said he entered the post office at 8:48 a.m. Thursday, shot nine employees, and then turned the semi-automatic 22-caliber rifle on himself.

Three people were dead

at the scene and a fourth, Rose Proos, 33, of Sterling Heights, Mich., died about 10 a.m. yesterday.

Five other people, one of whom broke her heel after jumping from a window, remained hospitalized yesterday in good to stable condition. Two others were released from the hospital after being treated for injuries they suffered when jumping from windows.

Mr. Frank called for an investigation into the postal shootings as well as other acts of random violence that have plagued the country in recent times. Thirty-four people have died in nine such incidents at postal facilities across the country since January, 1981.

He did not elaborate on who should conduct the investigation, but the largest U.S. postal union called for a congressional investigation.

"There's got to be something wrong with the environment of the post office that would lead to this cluster of massacres in this particular industry," Tom Fabey, spokesman for the 360,000-member American Postal

Workers Union, said.

"We're trying to get to the bottom of it. We have asked the chairman of the House Post Office and Civil Service Committee to launch a congressional investigation into what is fundamentally a troubled labor-management climate," he said.

Although Michigan abolished capital punishment in the mid 1800s, federal officials might have been able to seek the death penalty against McIlvane, a University of Toledo law school professor said.

Frank Merritt said yesterday it is a federal crime to murder a postal worker in the performance of his or her duties. Federal law imposes the death penalty for first-degree murder, which is defined as being premeditated or in the commission of certain other crimes, he said.

Thomas Secor, U.S. assistant attorney in Toledo, said that if a similar situation were to occur in Ohio, the local prosecutor and U.S. attorney would work out the issue of whether the suspect would be charged under state or federal law.

To prevent workplace violence, employee selection procedures are needed to screen out employees who are prone to react to stress with tasks that could induce stress perhaps through job enrichment, role simplification, and violent acts. Attention also needs to be given to those aspects of the workrole and the work environment that lead to stress. For instance, improvements in the heating, lighting, noise levels, and general comfort of the work setting could go a long way toward avoid violence. Also useful is role clarification

in which employees are given a better a sense of what is expected of them. Additionally, management could build into performance appraisal processes a greater sense of procedural and distributive justice.

### Effects of stress on withdrawal behaviors

As we will discuss a bit later in this chapter, one way of coping with stress is to escape or withdraw. In the workplace such coping usually takes place in the form of absenteeism and turnover. A review of this literature reported that subjective evaluations by workers that their work was threatening or harmful predicted absenteeism in the direction one might expect (Darr & Johns, 2008). In other words, those who experience stressors at work were more likely to take time off or fail to report to work. Interestingly, the authors reported that actual illness mediated the apparent effect of perceptions of work threat and harm on absenteeism. Their conclusion suggests that stress-related absence is not simply in the head of the worker. Workers are absent because stress makes them sick. The experience of stressors at work also is related to intentions to leave the organization and actual turnover. Podsakoff, LePine and LePine (2007) conducted a meta-analysis and found that work stressors in the form of hindrances and challenges were positively related to worker intentions to leave the organization and to actual turnover (see table 6.18). The authors find support for a model of the process by which stressors lead to turnover. The perception of stressors that challenge and hinder employees lessen their satisfaction and commitment to the organization, and it is through the effect on these work-related attitudes that stressors ultimately lead to intentions to leave the organization and actual quitting.

### Points to ponder

1. The impact of stress on performance is curvilinear for complex tasks. What is happening that would lead to diminished performance on complex tasks as stress increases?
2. Have you ever felt as though you were experiencing burnout? How did you feel and what did you do to overcome these feelings?
3. Burnout seems to occur more frequently for occupations such as nurse or caretaker. Why do you think these occupations are especially vulnerable?
4. What are the various ways in which stress might lead to accidents?
5. The physical, behavioral, and emotional strains were discussed as though they are independent and one does not influence the other. How are the various strains interrelated? Illustrate with your own life or what you have observed of others.

Variable	k	N	$r_{uc}$	$r_c$	Source
Absenteeism (with strain)	56	18,630	-.09*	.15	Darr & Johns, 2008
Absenteeism (with psychological illness)	128	66,679	.13*	.20	Darr & Johns, 2008
Absenteeism (with physical illness)	65	50,632	.14*	.22	Darr & Johns, 2008
Turnover intentions (with stressors)	76	22,745	.30*	.41	Podsakoff, et al, 2007
Turnover (with stressors)	13	4,303	.13*	.17	Podsakoff et al, 2007
Withdrawal behavior (with stressors)	27	7,355	.13*	.16	Podsakoff et al, 2007
Job satisfaction (with stressors)	81	19,894	.38*	.50	Podsakoff et al, 2007
Organizational commitment (with stressors)	39	13,244	-.31*	.43*	Podsakoff et al, 2007

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = confidence interval for correlation excluded zero.

Table 6.18: Correlations of Stress and Strain with Attendance and Withdrawal Behaviors.

### Who is Most Likely to Suffer from Stress?

A variety of stressors, emanating both from within and outside the organization have been examined along with the potential health and organizational outcomes of experiencing these stressors. Unfortunately, investigating associations between stressors and stress outcomes is not enough to provide an understanding of the stress process. The reader has no doubt observed people who lead stressful lives but rarely become ill or perform poorly; the reader also has observed people who crumble at the mere suggestion of adversity. For these two extreme types of people, the stress process works quite differently. What distinguishes these opposite types? A complete understanding of the stress process requires a consideration of the individual differences that can change or moderate the stressor-strain relationship. Stress researchers have explored two types of individual differences: demographics and personality.

## Demographic variables

Age, sex, and ethnicity are three variables that one might think are associated with stress. Older employees, females, and ethnic minorities are all thought to experience situations that put them at risk for work-related stress. Contrary to expectations, demographic variables do not consistently predict stress related responses and when effects are found, the results are the sometimes the opposite of what one might expect.

### Sex.

Whether one is male or female is an individual difference that one might expect to predict how people perceive and respond to the stress experience. In an analysis of a very large set of data from surveys of employees conducted in the U. S. and worldwide, Tay et al (2014) concluded that being a woman indeed was associated with greater likelihood of experiencing stress. However, the surveys in this case asked one general question (Did you experience a lot of stress yesterday, Yes or No) and did not allow a determination of whether the stress expressed by women was work-related. A quantitative review of sex differences on occupational stress (Martocchio & O'Leary, 1989) found no evidence of differences between men and women on either psychological or physiological stress across nineteen studies.

It is surprising that researchers have not found larger and more consistent sex differences for work related stress given that women suffer some distinct occupational disadvantages. Women are over-represented in low-paying jobs with limited promotion opportunities, high job insecurity, and weak or nonexistent labor unions, such as elementary school teacher, clerk/secretary, and nurse (Brief, Schuler & Van Sell, 1981). In traditionally male white collar or managerial work, women are often not privy to the mentoring or social networks central to managerial career advancement. They are probably not as frequently invited to play golf with their male coworkers on Saturday or join the men at poker night. Women are also frequently placed in peripheral or lower level management positions (regardless of merit) with little access to the mainstream career tract in the organization (Morrison & Von Glinow, 1990; Terborg, 1985). In addition to the general and specific sources of job-related stress, women with families often suffer the role conflict, ambiguity, and overload that characterize dual-career couples.

A more interesting question than whether women and men differ on the amount of work stress they experience is the issue of whether they experience stress differently. There is some evidence that women tend to develop psychological stress responses, such as depression and fatigue, whereas men tend to develop physical or physiological stress responses, such as high blood pressure (Davidson & Cooper, 1987; Jick & Mitz, 1985). There is also evidence that while women do not differ from men in the overall levels of job burnout they experience, they do differ on the dimensions of burnout. Women are more likely to express emotional exhaustion and men are more likely to express depersonalization (Purvanova, 2010). Working women tend to report more psychosomatic ailments, such as tiredness, irritation, and anxiety, than men (Cooper &

Davidson, 1982). Ivancevich and Matteson (1980) also reported that female managers and professionals suffer a higher incidence of drug-related abuse (for example, abuse of tranquilizers and sleeping pills) and a higher suicide rate than men. On the other hand, men and women both experience the same levels of job insecurity (Keim et al, 2014) and experience the same levels of stress in response to job insecurity (Cheng & Chan, 2008).

There is also some evidence that men and women differ in the ways they cope with stressors. Women seem more likely to seek and accept social support than men possibly because women are socialized in childhood to show more of a relationship-orientation than men. In an investigation of this possibility, male and female professionals were asked to report on social support and job and life stressors (Etzion, 1984). The female professionals not only reported more stressors, but also reported more social support than the men. The women also were more likely to report that they relied on extraorganizational sources of social support (e.g., family), whereas men were more likely to rely on work-related sources of social support. At the same time that women seem more likely to deal with stress through social relationships, men appear more likely to use aggression in coping. Biological evolution seems to have left men with a physiological and behavioral propensity to respond to threats with “fight and flight” whereas women are more likely to “tend and befriend” (Taylor & Master, 2011). Support for this contention is found in a study reporting that men were more likely than women to respond to work stressors with counterproductive work behavior (CWB) (Spector & Zhou, 2014).

In summary, women tend to suffer more disadvantages than men but women in general do not appear to report more stress at work than men in general. There is some evidence that women differ from men in their experiences of stress and the ways in which they cope. Although the findings so far show little basis for stating that biological sex is an important determinant of work stress, further exploration of sex as a moderator of the effects of stress and coping is warranted.

#### Ethnicity.

Similar to women, members of ethnic minority groups are at a disadvantage relative to majority groups and are presumed to suffer greater stress than the majority. Minorities are more likely to suffer unemployment, job insecurity, low paying jobs, and dangerous and uncomfortable work environments than majority group members (Morrison & Von Glinow, 1990). Also similar to women, one might expect that minority group members to express a lot more stress than majority group members. It is true that ethnic minorities (especially black persons) are more likely than white majority persons to suffer stress-related health problems (Williams & Mohammed, 2009; Williams, Yu, Jackson & Anderson, 1997; Williams, Yu & Jackson, 1997). However, there is very little research providing direct comparisons between ethnic group members on work-related stress (Millers & Travers, 2005). The research that exists has yielded mixed and generally small differences between members of ethnic groups and white majority respondents. Some research shows that blacks experience greater strain in response to stress (e.g., Hurtado, Sabbath, Ertel, Buxton & Berkman, 2012). Other studies show few or no differences



(e.g., He, Zhao & Ren, 2005). Tay et al (2014) reported that black, Hispanic, and Asian respondents actually expressed slightly less stress than white respondents.

Research on work-related stressors reveals that majority and minority group members do not differ in their overall stress, but that there are potential differences in their experience of stress and the ways they cope. An analysis of U. S. survey data reveals that unemployment and the threat of unemployment are positively related to heavy drinking, and this relation is stronger for black and Hispanic respondents than for white respondents (Lo & Cheng, 2015). Another study reports that leisure time physical activity has a major effect in reducing job strain among white employees but not among black and Hispanic employees (Bennett, et al, 2006). In summary, similar to what is concluded for sex, ethnicity does not appear to be a strong determinant of levels of stress but may well moderate the effects of stress.

#### Age.

Unlike the research findings for ethnicity and sex, the findings in research on age are consistent in showing that older employees generally express less work-related stress than younger workers. Ng and Feldman (2010) report that older employees reported more job control and less role ambiguity, overload, role conflict, emotional exhaustion, depersonalization, and reduced personal accomplishment. Hertel, Rauschenbach, Thielgen and Krumm (2015) find that older workers are more likely to report more active problem-focused coping than younger workers. Younger workers are more likely to use passive avoidance coping when they possessed low levels of job control. In their analysis of data from over 150 countries, Tay et al (2014) report a curvilinear relation in which self-reported stress increased with age, reaching a peak in middle age and then declining. That stress reaches a peak in middle age probably reflects the greater conflicting responsibilities of those in their thirties and forties. Not only are work demands at a peak but nonwork demands such as childcare are at their greatest for most workers during this period of life. Other research suggests that aging is associated with both costs and gains in the ability to cope with stress (Rauschenbach, Krumm, Thielgen & Hertel, 2013; Zacher, Feldman, and Schulz, 2014).

The research generally contradicts the common assumption that older employees are less capable of tolerating and coping with stress than their younger counterparts. Once again, however, the effects are small and reveal a complex pattern of relations. Age, similar to sex and race, does not appear to be a strong and consistent determinant of levels of stress.

#### Discrimination against demographic groups.

Membership in a demographic group based on age, ethnicity, or sex does not appear to be an important determinant of stress. What is important is the perception that one is discriminated against based on this membership. As previously discussed, the evidence is convincing that poorer mental and physical health are related to perceptions of discrimination, and this relation is likely mediated at least in part by stress associated

with the perceived discrimination (Pascoe & Richman, 2009). Discrimination that serves as a stressor comes in at least three varieties.

Blatant discrimination is one form. In a survey of over 1,800 U.S. respondents ranging in age from 25 to 74 fully a third of the sample reported some type of major discrimination (e.g., forced to leave a neighborhood), with “not hired for a job” and “not given a promotion” (Kessler et al., 1999). It is not surprising that reports of work-related stress and psychological distress are related to reports of harassment based on sex (Raver & Nishii, 2010), race (Buchanan & Fitzgerald, 2008; Schneider, Hitlan & Radhakrishnan, 2000), and age (Blackstone, 2013). High blood pressure is positively related to self-reports of racist encounters at work (Din-Dzietham, Nembhard, Collins & Davis, 2004). In a more recent study, found that blood pressure is positively related to self-reports of discrimination in the daily social interactions at work of both black and white employees (Richman, Pek, Pascoe, & Bauer, 2010).

Another variety of discrimination is social isolation. There is some evidence that individuals who report workplace exclusion in the workplace due to their ethnicity but no verbal harassment experience more health problems than those who report both exclusion and harassment (Schneider, Hitlan, & Radhakrishnan, 2000). Exclusion that occurs in the presence of blatant discrimination is attributable to prejudice, but exclusion occurring without verbal harassment is an ambiguous situation that the individual has difficulty interpreting. The uncertainty of the situation apparently leads to more damaging effects on well-being.

A third variety of discrimination occurs in the form of microaggressions (Sue, Bucceri, Lin, Nadal, & Torino, 2007; Solorzano, Ceja, & Yosso, 2000). These occur in the form of subtle verbal and nonverbal behavior that convey negative perceptions of ability, character, or motivation and are based on stereotypes and prejudices. Microaggressions include behaviors such as avoidance, unfriendly verbal and nonverbal communication, a lack of eye contact, and unwillingness to provide assistance. The individuals displaying the microaggressions are typically unaware of their behavior and the impact on the other. Subtle forms of discrimination seem to occur more frequently than overt forms of discrimination. Over 60% in one survey report experiencing at least one type of day-to-day discrimination such as being treated as inferior (Kessler et al., 1999). This type of pervasive discrimination against an individual can have a cumulative effect on the individual’s well-being, leading to feelings of hopelessness, discouragement, self-doubt, isolation, and resignation (Solorzano, Ceja, & Yosso, 2000). Subtle discrimination may even have a greater negative impact on health status than blatant forms of discrimination. For instance, there is evidence that the experience of subtle mistreatment but not blatant mistreatment is positively related to cardiovascular reactivity among the African American women (Gyll, Matthews & Bromberger, 2001).

In summary, membership in a demographic group is not as strong a correlate of stress levels as the perceptions of discrimination associated with this membership. This is a controversial set of findings. Isn’t it more important to ask whether discrimination actually occurs and whether the discrimination affects important outcomes such as salary

or employment? Aren't perceptions of discrimination equivalent to whining where there is not that much to whine about? The author of this text would argue that in this case the perceptions are as important as the reality and should not be ignored. When members of a demographic group believe that they are subject to discrimination, there is a serious problem that management of the organization needs to address.

## Personality

It is not difficult to imagine how some personality characteristics might influence perception of stressors and coping. A person who is generally anxious probably perceives a stressor as more threatening and respond more intensely than a person who is usually easygoing and calm. An introverted person is less likely to seek social interactions that might provide support. The research exploring the relation of personality and stress supports the importance of the personality as factor in the experience of stress.

### The big five personality traits.

Based on the Karasek Job-Demands-Control Support model, Finnish researchers surveyed employees using a big five personality questionnaire and a self-report measure of job demands, control, and strain. They report that perceptions of stressors and self-reports of strain are associated with the big five personality traits (Törnroos, Hintsanen, Hintsanen, Jokela, Pulkki-Råback, Hutri-Kähönen & Keltikangas-Järvinen, 2013). Employees report higher job demands the higher their neuroticism ( $r = .22, p < .05$ ) and openness ( $r = .12, p < .01$ ). They also report less control over their work situation the higher their neuroticism ( $r = -.31, p < .01$ ) and the lower their extraversion ( $r = -.36, p < .01$ ), openness ( $r = .24, p < .01$ ), conscientiousness ( $r = .22, p < .01$ ), and agreeableness ( $r = .14, p < .01$ ). When both demand and control are taken into account, all five big five traits are related to strain. Higher strain is associated with higher neuroticism. Lower strain is associated with higher extraversion, agreeableness, openness, and conscientiousness.

### Locus of control.

Some individuals tend to perceive themselves as subject to external forces that are beyond their control whereas others tend to perceive themselves as the masters of their own fates and in control of their environments. The former personality trait is called internal locus of control, whereas the latter is an external locus of control. The research is consistent in showing that an external locus of control is associated with self-reported strain and reports of more stressors. One meta-analysis reported that higher work-related locus of control was related to lower self-reported tension ( $r = -.28$ ), burnout ( $r = -.38$ ), role ambiguity ( $r = -.23$ ), role conflict ( $r = -.24$ ), and role overload ( $r = -.10$ ) (Wang, Bowling & Eschleman, 2010). The correlations with work-related locus of control were more strongly and consistently related to strain and perceived stressors than general locus of control.

## Type A-B personality.

A personality variable that has received a lot of attention in recent years is Type A behavior pattern. The study of this individual characteristic originated in the 1950s with the clinical observations of Drs. Friedman and Rosenman that there are distinct behavioral differences between patients with heart disease and patients free of heart disease. Because the traditional risk factors of coronary heart disease (chd), such as smoking, high blood pressure, and cholesterol levels, fail to predict only 50% or less of all chd cases, Friedman and Rosenman decided to investigate these behavioral differences as potential, independent predictors of chd.

Upon closer examination, Friedman and Rosenman found that a constellation of behaviors distinguishes the chd patient. These behaviors include explosive, accelerated speech, impatience with slowness, heightened pace of living, self-preoccupation, evaluation in terms of numbers (amount), engaging in multiple activities simultaneously, extreme competitiveness, and generalized hostility and dissatisfaction. These behaviors summarized in four general categories:

- \*\*aggressiveness
- \*\*hostility
- \*\*time urgency
- \*\*competitiveness.

According to Friedman and Rosenman, overt behaviors are most frequently observed in a person with these predispositions (tendencies) when the person is in a challenging or stressful environment (Mathews, 1982). These behaviors run on a continuum from extreme A to extreme non-A or B. Type B persons, the opposite of Type A, are easygoing and much less prone to chd.

Researchers believe that the Type A person is more prone to chd because people with this individual characteristic experience stress with much greater intensity than Type Bs. Of course, this greater intensity leads to a heightened stress response, with resulting health consequences. Type As appear to experience greater intensity (and frequency) of stressful events, that then lead to greater perceived stress, anxiety, hostility, depression, and lower job performance (Motowidlo, Packard & Manning, 1986). Interestingly, there is also some evidence that Type As show higher job satisfaction at the same time that they show higher levels of higher stress symptoms than Type Bs (Kushnir & Melamed, 1991).

The first measure of Type A was the Structured Interview, a 25-question interview administered by a trained interviewer. Both behaviors during the interview (for example, the interviewee rushing through the interview questions) and the answers to the interview questions are scored for Type A behavior. The Structured Interview seems to pick up the general reactivity (time urgency) dimension, characterized by rapid speech and multiple activities. The Jenkins Activity Survey contains 50 questions with content similar to the structured interview. Because the measure of Type A is based on not only the content of

the answers to questions but also the nonverbal behavior exhibited in answering these questions, one cannot assume that the Jenkins Activity Survey will generate the same scores as the Structured Interview. The Jenkins Activity Survey appears to provide a better measure of competitiveness (Mathews, 1982). It is much less costly to administer than the Structured Interview and has become the most widely used measure of Type A.

To take an online version of the Jenkins Activity Survey go to  
<http://www.psych.uncc.edu/pagoolka/TypeA-B-intro.html>

## Hardiness.

This is a composite personality variable that has captured the interest of stress researchers and appears to predict the experience of stress and strain. Kobasa (1979) defined hardiness as a personal characteristic possessed by people who think they control their environment, who are deeply committed to certain aspects of their lives (work, family, etc.), and who view change as a challenge. She found that individuals high on this constellation of personal traits (control, commitment, and challenge) are less apt to experience illness. In two of the early studies on hardiness, male managers who scored high on hardiness and reported high levels of stress in their lives experienced less illness than male managers who reported low hardiness and high stress (Kobasa, Maddi & Kahn, 1982; Kobasa, Maddi, Puccetti & Zola, 1985).

What do the accumulated findings of research on hardiness reveal? The research so far suggests that it is an important factor to consider in examining the experience of stressors and strain. A meta-analysis of the findings from over 40 studies and involving over 10,000 participants shows that hardiness is related to a variety of stress-related variables including stressors, strains, and coping (Eschelman, Bowling & Alarcon, 2010). In terms of stressors, individuals higher on hardiness report less work-family conflict (corrected correlations =  $-.31$ ) and less role ambiguity, conflict, and overload (corrected correlations =  $-.30$ ). In terms of strain, higher hardiness report fewer physical symptoms of poor health (corrected correlation =  $-.31$ ), less psychological distress (corrected correlation =  $-.46$ ), less depression (corrected correlation =  $-.52$ ), and less anxiety (corrected correlation =  $-.44$ ). Higher hardiness is associated with self-reports of health promoting behaviors such as less alcohol and tobacco use and more exercise (corrected correlation =  $.29$ ). Higher hardiness is associated with greater use of problem focused coping (corrected correlation =  $.36$ ) and less use of avoidance (corrected correlation =  $-.18$ ). Also, higher hardiness is associated with more social support (corrected correlation =  $.29$ ), indicating that hardiness leads to more proactive attempts on the part of the person to cultivate support among coworkers, supervisors, friends, and family. Hardiness also moderates the relation between stressors and strains. Specifically, the deleterious effects of stressors are lessened by high hardiness. Finally, individuals higher on hardiness perform better on the job (corrected correlation =  $.26$ ) and at school (corrected correlation =  $.23$ ). Of the three components of hardiness, commitment has the strongest association with stressors, strains, social support, and coping. This last finding suggests that those who are engaged in a variety of life domains including work, family, and friends, and have a strong sense of purpose possess the most resources in managing stress.

## Negative affectivity (NA).

Negative affectivity is the personal tendency to experience a wide range of negative emotions, such as tension, worry, dissatisfaction, and sadness. Not surprisingly is an important predictor of the experience of stress. In a study involving teachers, high NA respondents showed greater reactivity to work demands than low NA respondents (Parkes, 1990). The authors of one meta-analysis reported that negative affectivity, along with neuroticism, had a stronger relation to burnout than any other personality trait ( $r = .49$ , corrected) (Alarcon, Eschleman & Bowling, 2009). Because NA often correlates highly with stress scales, there is some controversy over whether measures NA and stress are indicators of independent constructs or whether they are really tapping the same underlying construct - a predisposition to respond negatively (Watson, Pennebaker & Folger, 1987; Brief, Burke, George, Robinson, & Webster, 1988).

## Conceptual approaches to the role of personal characteristics in stress

The problem with research on personal characteristics is that it can lead to a thoughtless enumeration of demographics and traits associated with stress with little understanding of why various characteristics relate to stress. Two conceptual frameworks that serve as useful ways of interpreting the role of individual differences are the Person-Environment Fit (PE fit) and the Conservation of Resources (COR) models.

### Person-Environment fit.

Several theorists propose that the essential component stress is the assessment of the self in relation to the environment (P-E fit). One version focuses on values and states that high stress reflects a perceived discrepancy between the environment and the self. To the extent that people perceive that they are in a work environment that fails to fit their values, they experience psychological and physiological distress and may engage in behaviors that are harmful to themselves and the organization. Another version focuses on the fit between the person's knowledge, skills, abilities, and other characteristics (KSAOs) and the demands of the work environment. To the extent that the person perceives that his or her KSAOs are not at a level required in the work situation (the job, the work group, the supervisor, the organization), they experience stress. The better the fit of the abilities, attitudes, and other characteristics of the employee to the work environment, the less likely the employee is to report self-reported strains (Kristof-Brown, Zimmerman & Jackson, 2005; see table 6.19). Two types of assessment of fit are used in the research. In the direct method, employees' perceptions of the discrepancies between their own values and the organization's values are measured directly. In the indirect method, employees' values and the values of the organization are separately measured and then the differences between the two are measured. In both approaches, increased discrepancy in the fit of the person to the organization is typically associated with self-reports of strain.

Type of fit	k	N	$r_{uc}$	$r_c$
Person-Job Fit	10	3,505	-.23*	-.28
Fit of abilities and job demands	4	2,025	-.25*	-.30
Fit of Needs and Resources	6	1,642	-.25*	-.31
Person-Organization Fit	8	3,605	-.22*	-.27
Directly assessed perceptions	6	2,184	-.28*	-.34
Indirectly assessed fit	2	1,421	-.14*	-.17

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = confidence interval for correlation excludes zero.

Table 6.19: Correlations of P-O and P-Job Fit with Self-Reported Strain.

#### The conservation of resources model (COR).

Hobfoll's (1989) conservation of resources (COR) model provides another framework for conceptualizing the role of individual differences in work stress. According to this perspective, employees muster material, social, and personal resources to deal with stressors. Personal resources include personality characteristics such as emotional stability, self-esteem, self-efficacy, hardiness, and positive affectivity. Social resources include social support from colleagues, family, supervisors, and other people who can provide assistance in dealing with work tasks or provide emotional support. Material resources include the tools, supplies, and other tangible assistance provided by the organization to facilitate the performance of tasks. The primary source of strain (negative reactions to stressors) is the threat to the resources that the individual needs to successfully perform their tasks at work. When workers are faced with threat in the form of stressors they strive to minimize the net loss to their resources. When NOT faced with threat, workers strive to develop resource surpluses against the day when they are faced with stressors.

From a COR perspective, the relations that are observed between personality variables and strain reflect the resources that workers with particular traits can muster to deal with stressors. Those with high extraversion possess the energy and behavioral strategies that allow reaching out to others and acting on their environment. Those who are conscientious can organize their tasks and manage their time. Those who are high on agreeableness can build close relationships and warm interactions with other people. Those who are high on openness are more comfortable looking for alternative strategies and new ideas, and letting loose of regular routines, all of which are valuable in dealing with threats. Those who low on neuroticism and emotionally stable can stay calm in the face of stressors, perhaps the most important of all the resources associated with personality traits. Hardiness is a cluster of traits defined by control, commitment, and challenge, which provide obvious resources to the worker attempting to deal with

stressors and cope with the strain that might result from these stressors. Similarly, self-esteem, self-efficacy, internal locus of control, and the other personality characteristics are personal resources that an individual can fall back on and use to protect against psychological and physical harm inflicted by stressful work environments.

#### Points to ponder

1. How are the five personality traits related to work stress and why?
2. Most of the research on the relation of locus of control to stress has been conducted in western cultures. Do you think the same relationships found in western cultures such as the U. S. might hold for other cultures, such as Asian or Latin American cultures? Why or why not?
3. Define hardiness and the dimensions of this personality variable that appear to account for the ability of a person high on this trait to effectively deal with stress. Do you think that hardiness is something that can be modified? If so, how?
4. What are potential resources that a person could bring to bear in dealing with stress in the COR model.
5. Are you a Type A or a Type B personality? Do you think this trait positively or negatively affects your work performance and your general well-being?

#### How Can Employees Manage Stress?

The reader has seen how stress unfolds in the work environment starting with the stressors, the physiological and psychological reactions to these stressors, and the consequences for the person and the organization. But what can be done to deal with stress? What can individuals do to deal with stress in their daily work and non-work activities? What can the management of organizations do to help employees deal with stress and to reduce stress in the work environment? In examining the alternative stress management strategies, those approaches that take a psychological approach can be distinguished from those taking a physiological approach (see table 6.20). In the psychological approach the primary focus is on changing one's thinking, feeling, and behavior. Contrast this approach with the physiological approaches that focus on changing physiological reactions to stressors.

#### Physical exercise

Over the last several decades, employers have implemented exercise programs in the attempt to increase productivity and satisfaction and to reduce health costs. Many organizations, such as General Motors and Johnson & Johnson, developed in-house exercise facilities and programs. Some organizations even offer incentives in the form of cash and fringe benefits to employees who use these facilities on a regular basis.

Beyond the overall health benefits, one might ask if the personal and organizational emphasis on physical fitness has any merit as a stress-reduction aid. The answer is a resounding yes! Physical fitness experts agree that a consistent exercise routine is one of



the easiest and most reliable ways to reduce the harmful effects of stress, as well as to achieve physical fitness. These beneficial effects can include increased physical as well as mental health. A meta-analysis of the research conducted between 1966 and 2007 evaluating the effects of workplace physical activity interventions found that physical interventions were generally beneficial (Conn, Hafdahl, Cooper, Brown & Lusk, 2009). Those participating became more physically fit as measured with physiological measures and also reported higher quality of life and more positive mood. There were small but positive effects in which employees engaged in physical exercise programs had lower job stress and absenteeism and reported higher job satisfaction.

Focus of Stress Management			
Thinking	Behavior	Emotions	Physiology
Psychotherapy	Work habits	Do something you enjoy (e.g., hobby, read, music...)	Exercise
Reframing	Anger control	Guided imagery.	Physical contact (hugging, massage, sex)
Optimism..look for the upside	Dietary habits	Relaxation/Meditation	Biofeedback
Positive self-talk	Socialize and form positive relationships	Venting emotions	Alcohol
Revise standards and goals	Time management	Avoid stressful situations and people	Drugs
Forgive	Keep a journal	Humor	Sleep
Problem solve	Avoid perfectionism.	Care but do not fret.	Eating

Table 6.20: Stress Management Techniques

Positive outcomes are typically observed only when the exercise is aerobic. Aerobic exercise is any physical activity that produces an elevated respiration, heart rate and metabolic rate for 20-30 minutes. Examples of aerobic exercises include jogging, swimming, tennis and bicycling. The reason aerobic exercise is effective seems paradoxical. Both the experience of stress and vigorous exercise increase physiological activation (for example, elevated heart rate, respiration) and hormonal activation (for example, increased adrenalin levels). However, physically fit persons show lower physiological and hormonal activation at rest and under stress (Falkenberg, 1987; Ivancevich & Matteson, 1980; Selye, 1975). In other words, the bodies of physically fit individuals achieve a much lower baseline of arousal in general and depart relatively less from their (lower) baseline than unfit individuals. Engaging in aerobic exercise soon after

experiencing stress also seems to have additional benefits. One of the immediate effects of vigorous exercise is to metabolize or burn off the harmful by-products of the stress response quickly (Falkenberg, 1987).

The reasons behind the mental health benefits, however, are not so easy to determine. The mental health of a person who exercises may improve simply because he or she is doing something positive. Exercise also serves as a break or diversion in the day. One of the most interesting explanations is the presence of endorphins, natural, morphine-like chemicals, in the bodies of people who are vigorously exercising. Endorphins are naturally occurring painkillers produced by the brain. Scientists have measured significant elevations of endorphins in the bloodstreams of people who are exercising. Increases in the levels of these natural substances are also associated with the phenomena of "runner's high" and "getting a second wind" often reported by athletes (Falkenberg, 1987; Ivancevich & Matteson, 1980).

The positive benefits of exercise also are linked to organizationally relevant outcomes such as task performance. People who exercise regularly seem to perform better on some physical and cognitive tasks, especially under stressful conditions. The rationale here is that those who exercise regularly are generally less aroused when at rest. The reader might recall the Yerkes-Dodson effect showing that on complex cognitive tasks performance decreases at the highest levels of arousal. Thus, regular exercise leads to higher performance on complex cognitive tasks as the result of lowering the baseline of general, at-rest arousal. Another benefit of regular exercise is that fit people recover from stressful events more rapidly. In those situations, where a person must make judgments or decisions under stress, the ability to recover from the effects of stress is a crucial determinant of performance.

### Relaxation/meditation techniques

These techniques refer to structured relaxation or meditation that date back to antiquity; in the sixth century B.C. eastern scriptures mention mental and physical relaxation achieved through meditative practices. An essential feature of meditation is the clearing of the mind of all thoughts through focusing one's concentration. The technique often involves physical relaxation, the repetition of a word, phrase, or sound (a mantra), and slowly breathing in and out. Meditative techniques were practiced in most religious traditions and often involve a spiritual framework. A well-known form of meditation is called transcendental meditation or TM. TM gained recognition in this country when the Maharishi Mahesh Yogi introduced it to America in the 1960s. TM is a simple type of meditation that requires minimal instruction, although it does have a spiritual emphasis. Secular or non-spiritual techniques have also been popularized; one of the most widely used secular techniques is the relaxation response (Benson, 1975). Herbert Benson, a Harvard cardiologist, developed the relaxation response for his patients by distilling the essential components of TM. He claims it produces the same effects as TM.

Meditative and relaxation practices differ not only in the amount of spiritual or religious emphasis, but also in the amount and focus of the training. Many (for example, TM)

require some degree of formal training and others, such as the relaxation response, are self-taught. Some, such as TM and the relaxation response, emphasize primarily mental relaxation. Others, such as a technique known as progressive relaxation, emphasize physical and muscular relaxation. Progressive relaxation exercises attempt to systematically relax each of the 16 major muscle groups in the body.

Whether ancient meditative practices steeped in religious tradition or modern secular ones are used, the proponents of meditation claim all techniques achieve relaxation through a reversal of the stress response: Consistent practice of meditation or relaxation reduces metabolic rate, heart rate, and respiration. Proponents also claim that one long-term effect is reduction of blood pressure. However, an early review of the research on the health effects of meditation and relaxation (Holmes, 1984) was not very encouraging. According to this review, relaxation and meditation are no more effective than simply resting. However, these conclusions were based on results from only a few, well designed experiments; many relevant studies were omitted because they did not provide a basis for drawing cause-and-effect conclusions from the findings. More recent reviews suggest that meditation has substantial benefits for physical and mental health (Chiesa & Serretti, 2009; Eberth & Sedlmeier, 2012; Grossman, Niemann, Schmidt & Walach, 2004; Regehr, Glancy, Pitts & LeBlanc, 2014). The debate continues on whether the benefits of meditation on management of stress result from simple relaxation or result from something more. But one conclusion is clear: whatever it is called, some sort of relaxation or meditation benefits a person's ability to manage stress.

## Biofeedback

This involves the electronic measurement of physiological (body) processes that are converted to light or sound signals to provide feedback on how these body processes are functioning (Photo). For example, a person hooked up to a biofeedback machine can receive feedback about the muscle tension in her neck or forehead in the form of soft tones. Using this auditory feedback, she can learn to control the tension in her forehead or neck. Hopefully, after practice, the person can control her muscle tension without the biofeedback machine. The research has shown that biofeedback is an effective means of teaching the management of stress. The downside is that it does involve equipment, special physical arrangements, and a skilled trainer.



## Psychotherapy

Counseling with a trained clinical psychologist or psychiatrist in either an individual or group setting is often an effective intervention. Typically, the goal of such therapy is to cognitively restructure the way a person thinks so life does not seem so threatening or stressful. Therapy can also include coping skills training, such as time management and assertiveness training. Both biofeedback and therapy are useful and effective stress management practices, although both are often fairly expensive, long-term options.



## Personal coping styles

People appear to develop characteristic styles to dealing with stress that they use consistently across situations and another approach to managing stress is to identify the most effective coping styles and train employees to make use of these styles. Edwards and Baglioni (1993) proposed five categories of coping behaviors based on a model of stress that defines it as basically a discrepancy between a person's current state and their desired state. For instance, employees might desire to have more control and influence over the situation in which they work. To the extent that they perceive that they lack control, there is a discrepancy between the current state and the desire and the experience of stress.

Edwards and Baglioni (1993) propose that one approach to coping with this situation is to change the situation. This consists of active problem solving on the part of the person to modify the situation so as to bring the situation in line with the individual's desires. Thus, employees who desire control over the situation may attempt to increase their control by structuring the situation, developing skills and competencies, making alliances with other workers, and other active attempts to solve the "lack of control problem." Another coping strategy is to accommodate to the situation. Employees who desire control may lower their expectations for the amount of control they desire to exercise. In this way they bring the current state and desired situation closer together by changing their desires to fit the situation. Another form of accommodation is to reframe the situation so as to emphasize the positive and deemphasize the negative.

In accommodation the employee considers it important to exercise control but lower their expectations for how much control they can exercise. In the third coping strategy, devaluation, the employee lowers the importance of the discrepancy between the current and desired states. Employees who lack control, for instance, might decide that lacking

control is not that important and thereby soften the impact of lack of control. In **symptom reduction** the workers attempt to reduce the anxiety and other negative emotion associated with the discrepancy between the desired and current state. Employees who lack control may attempt to regain a sense of control and feel better about themselves by engaging in drug abuse and drinking. The use of alcohol and other drugs as well as physical activity such as exercise to reduce anxiety are examples of symptom coping.

Finally, employees using avoidance attempt to either physically or mentally leave the situation so as to keep from thinking about the discrepancy between their current and desired states. Workers who lack control might daydream or focus on the fun things they will do after work. They might also come late or skip work in an attempt to not think about the stressful situation.

Coping with stress by confronting and attempting to solve the problem is usually considered more effective than alternative coping strategies. In a survey of 691 employees from 24 organizations using the cybernetic coping scale, researchers found that the use of problem solving to change the situation was associated with more positive outcomes whereas the use of the other four coping strategies were associated with negative outcomes (Brough, O'Driscoll & Kallaith, 2005). In a study conducted with a sample of hospital managers and professionals, the investigator reported that use of control coping (comparable to changing the situation) was related to high job satisfaction and low anxiety, whereas escape (i.e., avoidance) and symptom management coping were related to increased health problems (Latack, 1986). In still another study, the investigator found that control coping (changing the situation) was associated with decreased burnout, whereas escape coping (i.e., avoidance) was related to increased burnout (Leiter, 1991).

It is wrong to conclude from these findings that employees should only seek to solve the underlying sources of their stress through changing the situation and to avoid the use of the other coping strategies. Indeed, the use of a problem oriented approach such as changing the situation would need to include elements of all the other four approaches. To seek changing the situation, employees would need to use some accommodation, at least to the extent of framing the situation as a problem in need of a solution rather than a threat to avoid. They might even need to avoid some elements of the problem and to devalue others while focusing on those aspects of the problem that are most solvable. To stay calm as they focus on the problem they might find it effective to address the symptoms through exercise, meditation, and relaxation. In short, individuals often need to use more than one. An employee who has no control over stressors may even find that reducing symptoms through avoidance, accommodation, and devaluation are more effective coping approaches than attempting to problem solve.

The best advice is for individuals to remain flexible enough to use more than one coping strategy and to avoid the overuse of any one strategy. Still, if one had to choose among the five coping strategies and only use that one strategy, a strategy characterized by proactive attempts to change the situation seems far superior to the other strategies.

## Do stress management interventions work?

Industry spends millions of dollars annually on stress management programs that incorporate many of the strategies previously discussed. The bottom line is: Do they really work? After participating in such programs do employees feel less stressed? The evidence is mixed, although promising. The most common approach in organizational stress management programs is some combination of general information about stress, relaxation or meditation training, exercise, and therapy/coping skills training. Organizations rarely measure the impact of structural interventions in assessing stress management efforts, probably because structural interventions typically focus on other factors, such as productivity and turnover.

Some well-designed assessments of organizational stress management programs have reported decreases in physiological stress responses, such as pulse rate and blood pressure (Bruning & Frew, 1987) and psychological stress responses, such as burnout (Higgins, 1986). Research with military personnel has shown increased cognitive performance after they participated in a stress management program (Larsson, 1987). Training in stress management with unemployed workers has been shown to improve coping with job loss, increase motivation, and lead to higher quality reemployment (Caplan, Vinokur, Price, & van Ryn, 1989). Stress management programs that go beyond short-term outcomes and attempt to increase the long term coping skills of employees are potentially beneficial (Ivancevich, Matteson, Freedman, & Phillips, 1990).

One meta-analysis of the research evaluating the effectiveness of workplace interventions aimed at reducing stress identified 36 experiments evaluating 55 interventions and involving 2,847 participants (Richardson & Rothstein, 2008). The investigators found that the overall effect of the interventions was moderate to large with a  $d = .526$ . The largest effects were obtained for cognitive-behavioral interventions which were focused on changing how employees perceived and framed their experiences and instilling more effective coping strategies. Relaxation and meditation interventions also were found beneficial, although not to the same extent as cognitive-behavioral approaches.

But should organizations focus on changing an employee's ability to deal with stress or should they instead eliminate the stressors that are responsible for stress? Ganster and his colleagues (Ganster, Mayes, Sime, & Tharp, 1982) warn against being overly optimistic about the long-term effectiveness of stress management programs. In what remains one of the best-designed experiments evaluating stress management in an organizational setting, Ganster et al (1982) assessed the effectiveness of eight weeks of stress management training in a group of public agency employees. The training included therapy and relaxation exercises. Physiological (adrenaline and noradrenaline) and psychological (depression, anxiety, irritation, and body complaints) measures were administered before and after the training and at four months. Although decreases in both physiological and psychological stress responses were found in program participants relative to a no training-control group, the researchers questioned the ethics of simply training employees to manage their stress without also attempting to change the work environment. They suggest that while training employees in how to manage stress is

beneficial in the short term, management should not stop there. They should also try to get at the sources of the stress in the work environment through structural interventions such as job redesign or participative management.

### Organizational interventions

In addition to individually oriented techniques, the management of organizations can implement changes at the level of the work group or the total organization. Instead of helping workers manage the stress they experience, these techniques are designed to reduce the sources of the stress (i.e., the stressors).

Team building interventions. Organizational Development (OD) consultants often are called upon by organizations to improve work group functioning. The reason typically given for desiring these changes is not stress within the work group, but poor group performance or functioning. However, the source of these performance problems is frequently stress-related, usually in the form of conflict among work group members.

When conflict arises within a work group because members are unclear about work roles, a technique called role analysis (Dayal & Thomas, 1968; French & Bell, 2005) is very helpful. The purpose of role analysis is to clarify the role expectations and obligations of work group members. Initially, a group coordinator or consultant asks the worker in question (or a representative of a group of workers in similar jobs) to list the duties, behaviors, responsibilities, (for example, balance the budget, meet with upper management, supervise clerical staff) and position in the organization (for example, middle management) that he perceives to define his work role. As a group, this focal work role is discussed until consensus is reached. The end product of this discussion is the role profile, a document that defines the work role in terms of duties, behaviors, and responsibilities. This exercise often dramatically clears up confusion about why someone is not doing his job correctly. Poor performance is often the consequence of disagreement between the performer and other persons in the work setting in their perceptions of work-related responsibilities and obligations.

Some exercises have also been improvised to reduce conflict between or among different work groups (for example, marketing and sales). The organizational mirror technique (French & Bell, 2005) is a set of activities in which a work group receives feedback from one or more groups about how the group is perceived. For practical reasons, representatives of each group, rather than the whole group, meet with a group coordinator. During the meeting, the groups “fishbowl” a discussion of the issues. Fishbowling consists of an inner circle of people who engages in the discussion and an outside circle that only listens or observes. The outside circle cannot interrupt the inner circle for any reason. Next, the groups reverse positions. Finally, the two groups come together to discuss what they have and chart a course of action for solving the problem(s).

Structural interventions: changing the organization. This type of stress management intervention reduces stress by changing the structure of the organization itself or the nature of the jobs or work within the organization. As with the team building

interventions, the structural interventions are frequently implemented to increase productivity or general functioning. However, they also typically decrease stress and increase satisfaction.

A commonly used structural intervention is participative management (that is, worker input into managerial decision-making). A quality circles program is a specialized type of participative management because it targets the enhancement of product quality (for example, making a better car, providing better service to clients). A quality circles group is composed of ten or fewer employees from a work group that meets regularly to analyze production-related problems. Their recommendations are forwarded to management for support and/or assistance in carrying out the recommendations. Many organizations report dramatic increases in product quality and organizational effectiveness after implementing such a program. As a consequence of their participation in the program, workers also usually feel more invested and involved in their jobs and the organization.

Other types of structural changes in the organization are used to reduce job-related stress. Job or task redesign is one such technique. We can change many jobs to increase, for example, the amount of variety, skill, and significance the worker experiences, whereas others may require simplification. Thus, both job enrichment and job simplification are means of reducing stress.

#### Points to ponder

1. How do you manage the stress in your life? Do you think the way you manage stress is effective or ineffective? What can you do to increase the effectiveness of your stress management?
2. Of the various interventions to enhance the ability of workers to deal with stress, which is most effective for you and why? Why are the others not as effective?
3. Ganster et al suggest that although stress management training may benefit employees, organizations should instead focus on changing the organization so that stress isn't as much a problem. They even suggest that it is unethical for management to do stress management workshops and not attempt to change the organization. What do you think?

#### Conclusions

The experience of stress is composed of environmental sources, or stressors, immediate physiological responses, and short-term and longer term outcomes, or strains. The physiological responses present a paradox because, although they are adaptive in the short-term, they are very destructive as chronic responses to stress. The perception of stress, or cognitive appraisal, occupies a central role in the stress experience. Indeed, depending on one's appraisal, the effects of a stressor are negated or a stressor is perceived where none actually exists. These complexities inherent in the study of stress have prompted researchers to develop models to organize information about stress.



The occupation itself is a source of stress, particularly in lower level jobs and jobs in service professions, such as law enforcement and medicine. Environmental stressors, such as noise and heat, are common stressors for many blue-collar workers.

Researchers have extensively studied organizational stressors, often called white-collar stressors. The work role based stressors, role conflict and role ambiguity, have been associated with strains in hundreds of studies. Regardless of whether a worker experiences environmental or organizational stressors or both, all workers are subject to various sources of nonwork stressors. Stressors apart from work settings are believed to influence or spill over into work and vice versa.

This chapter reviewed several work-related stressors that appear to play a prominent role as antecedents to short-term and long-term stress responses. Physical, emotional, and behavioral stress-related responses appear to increase in frequency and intensity to the extent that workers

- \* perceive less control and autonomy
- \* report higher workloads
- \* report boredom and monotony
- \* report lack of social support
- \* experience aversive physical work environments
- \* are engaged in shiftwork
- \* report role conflict and ambiguity
- \* report job insecurity
- \* have experienced or observed unemployment and downsizing
- \* perceive injustice in the workplace
- \* have experienced or observed unfair discrimination
- \* have experienced major life events associated with stress
- \* report more daily hassles and fewer daily uplifts
- \* experience work-family conflict

Much of the research has focused on health-related strains. The experience of many stressful life events, such as divorce or promotion, has been linked to health problems. One of the more serious of these problems, coronary heart disease, has been related to the Type A behavioral pattern. In addition to health, organizational strains also have been widely studied. The relationships among work-related attitudes and work-related stressors are some of the most consistent in stress research. The experience of job stressors also can affect job-related behaviors. An example is the phenomenon of burnout, which has been associated with feelings of emotional exhaustion, depersonalization, and decreased feelings of personal accomplishment. Sustained stress can negatively affect performance (although the relationship of stress to performance is curvilinear on complex tasks). Stress can also lead to withdrawal behavior in the form of absenteeism and turnover, accidents, fewer organizational citizenship behaviors, and workplace violence.

The research on work-related stress has identified variables that moderate or change the relationships among stressors and strains. These moderator variables include gender,

race, personality characteristics, and social support. It also has been shown that people cope with stress in a variety of ways and that they differ in their styles of coping. Some coping strategies are proactive and take-charge, whereas others are escapist and avoidant. Stress management programs in industry typically target the individual or the organization as the focus for change. Individual stress management techniques include exercise, relaxation/meditation, biofeedback, and psychotherapy. Organizational stress management techniques include work group interventions, such as team building, and structural interventions, such as participative management and job or task redesign. It is important to recognize that any intervention or change that creates an improved work setting, such as a better selection or performance appraisal system, is in one sense a stress management technique. Efforts to reduce stress should involve a holistic approach that includes not only training to help individuals cope with stress but also efforts to make the organization a more fulfilling and healthy place to work.

Several current trends in the workplace suggest that work stress is an increasingly important topic in I/O psychology as the changes in organizations and jobs bring a host of new stressors to employees. As women continue to enter the work force, the demands on working parents and dual career couples to juggle both work and domestic commitments will continue to increase. Other stressors include job insecurity, job loss, and part-time employment. Although psychologists have little knowledge about these stressors at this time, they are thought to seriously influence worker attitudes, health, and behavior. Within the last 10 years, everyone has become acutely aware of major structural and personnel changes in organizations in the form of downsizing, reductions in manpower, restructuring, and corporate takeovers. These changes have deeply affected American industry and, for many workers, have had a devastating impact on individual jobs and careers (Ivancevich, Matteson, Freedman, & Phillips, 1990). In fact, job insecurity and concern about potential job loss have been associated with decreased personal well-being and negative work-related behaviors and attitudes (Roskies & Louis-Guerin, 1990).

Job loss and unemployment (or their threat) are real and critical issues for many American workers today. Whereas everyone acknowledges the negative effects of job loss and unemployment on terminated employees (Jahoda, 1982), psychologists only recently have begun to study the personal and organizational impact of job loss on survivors (i.e., those workers who were not terminated). Organizations rely increasingly on part-time or temporary workers to maintain productivity levels but little is known about the effects of working part-time vs. full-time on stress. Do part-time and temporary workers experience more job-related stress because they are not full-time, permanent members of some organization? Another problem is the continued impact of the technological explosion on organizational stress. In the last 10 years, American industry has witnessed the automation and computerization of many jobs, which have profoundly changed the nature of work. How will the increasing computerization and automation of work impact work stress and how does management introduce these technological changes in a way that avoids psychological and physical strains? As the research on stress and strain in the workplace continues to grow, the field of I/O psychology may eventually generate answers to these and other questions.



## CHAPTER 7: SOCIAL PROCESSES IN ORGANIZATIONS



## Introduction

On January 13, 1982, Air Florida flight 90 departed from the National Airport in Washington, DC, in the midst of a winter storm. A heavy accumulation of ice on the wings of the aircraft led to loss of lift. The plane hit the 14th Street Bridge and crashed into the Potomac River with the loss of 78 lives. Social behavior in the cockpit appears to have been an important factor in this tragedy. Subsequent analysis of flight recordings revealed that the first officer advised the captain several times that there were problems, but these warnings either were not heard or were ignored ("Air Florida 737 voice recorder transcribed," *Aviation Week & Space Technology*, January, 1982, p. 81). The failure of the captain to listen to the first officer's warnings and the lack of assertiveness with which the first officer communicated these warnings have been attributed to a social norm common among cockpit crews that they are not to question a captain's decisions (Gersick & Hackman, 1990). This was not the only case of a communication failure leading to a plane crash. According to one report, some of the deadliest air crashes were caused by miscommunications (<http://www.bestcommunicationsdegrees.com/10-deadliest-air-disasters-caused-by-miscommunication/>).

Flying traditionally has been viewed as the heroic effort of single individuals rather than as a team effort. Nevertheless, how well people work together is a crucial factor in the success of any organization or group. This inattention to teamwork has not been restricted to cockpit management but has been a common oversight in organizations in many individualistic cultures and especially the United States. Employers have traditionally viewed their employees as collections of individuals held together through self-interest, rules, procedures, and the exercise of authority. When groups are acknowledged, they are often seen as barriers rather than vehicles for achieving organizational goals. This individualistic orientation was particularly true of scientific management proponents such as Frederick Taylor (see history of I/O module) and continues to influence the way organizations in the United States are run.

There are signs, however, that employers are finally coming to grips with the inherently social nature of organizations. For instance, in response to tragedies such as the Air Florida crash, airlines have implemented Cockpit Resource Management (CRM) training to help crews work together as a team (O'Connor, Campbell, Newon, Melton, Salas, & Wilson, 2008). Another sign is the increasing number of firms that are using group management approaches such as team building, quality circles, self-managing teams, liaisons, task forces, and ad hoc committees. Visitors from a distant planet who did an anthropological study of a typical organization on earth would find that most of the human activity they observe is not in the form of the actions of individual isolated employees but instead occurs in collections of two or more employees. Organizations are groups of groups, signifying that the essence of organizing human activity to accomplish goals is dividing up the work and assigning tasks on the basis of group membership. This and the next two chapters are concerned with the social psychology of organizations. Organizations are basically groups of groups. People must interact with one another in the performance of their tasks, and in the end, the effectiveness of the organization depends to a large extent on how well these interactions go. This chapter reviews the

processes contained in these interactions. The next chapter reviews the ways in which social processes stabilize to form social structures and how these structures shape the organization and the participants in that organization. Finally, a third chapter will examine groups in organizations and what makes them effective or ineffective.

### A working model of emergent social process

To illustrate, the reader should imagine that he or she is an observer of a collection of individuals who are assigned some task by their manager. The task is to follow this collection of people over time to see how well they work together. The first thing that becomes apparent is that people are communicating but each individual is communicating more to some than others. A closer look reveals that there are attempts to influence each other and that some are much more successful than others. Individuals sometimes seem to cooperate with one another, but at other times appear to compete. On occasion conflicts break out as people attempt to win arguments and in other ways wield influence. In observing any collection of individuals, social processes are the raw material for your observations. Social process consists of the various acts that people perform at a point in time as they interact, and includes such behaviors as talking, influencing, fighting, and helping. The emphasis in all this is on the "ing." Weick (1979) captured the dynamic character of social processes when he described organizations as continually in the process of being built up, torn down, and reconstructed.

In the first few interactions of the collection it is hard to predict the behavior, but with each successive meeting the social interactions become more predictable. Some people begin to interact with each other more than they do with others. Expectations form for how people are to behave. Some people are positively attracted to each other, and a strong, cohesive unit emerges from these attractions. The emergent relationships that add predictability and stability to interactions within a collection of people are called social structures. Whether the social processes and structures allow individuals to deal with crucial task issues will determine whether they succeed or fail in achieving their goals. Special attention is given in this chapter to eight categories of social processes that are particularly important in organizations: communication, influence and power, conflict/competition/cooperation, social exchange, political behavior, organizational citizenship, counter-productive work behavior, and socialization. The antecedents and potential consequences of these social processes are depicted in figure 7.1. Several factors influence who in an organization interacts with whom and the nature of their interactions, including the personal characteristics of employees, characteristics of the organization and the task, and characteristics of the interpersonal relationships among employees.

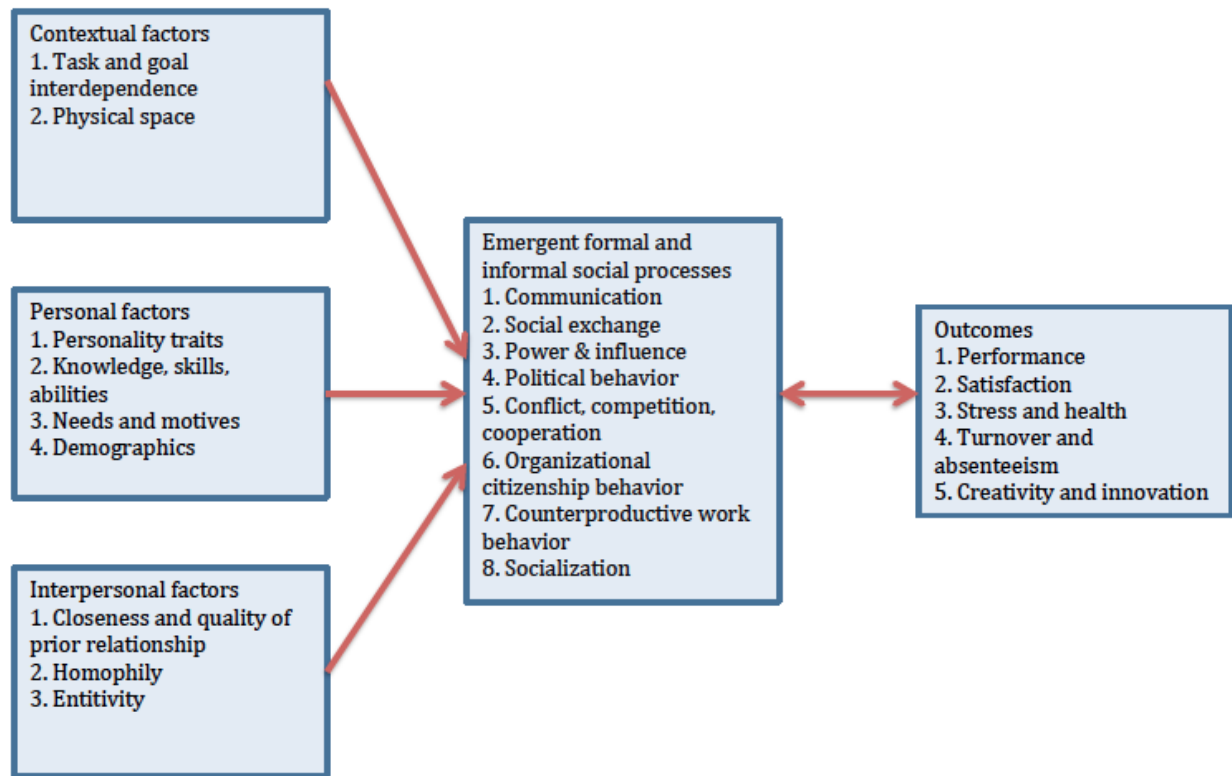


Figure 7.1: Emergent and Informal Social Processes in the Organization

#### Contextual factors influencing social process

Physical space. People who are physically close, and who consequently have an opportunity to interact, are more likely to form a network than those who are farther apart. In one study, 29 secretaries were observed in an office over a two week period. From 1,558 recorded interactions, three clusters of secretaries were identified that seemed to constitute informal relationships (Gullahorn, 1955). These three groups were strongly associated with the physical location of the secretaries. Those who were physically closer were more likely to interact with 78 percent of the interactions occurring within the row in which an employee sat.

The opportunity to interact is affected by physical features other than mere proximity or closeness. Some spaces are designed in a way that encourages interaction. For instance, placing chairs in a room so that people are facing each other is more likely to encourage interaction among those sitting in the chairs than placing the chairs in a row so that people have no face-to-face contact. Spaces designed to encourage interaction are called sociopetal spaces and those that discourage interaction are called sociofugal spaces (Sommer, 2008).

Opportunity: How would these physical work spaces affect social interaction?



Interdependence of relationships. Two or more people are interdependent if the activities and the outcomes of one are influenced by the activities and outcomes of others. A relationship does not exist unless there is some degree of interdependence among those involved. The nature and strength of the interdependence can vary greatly, however. The strongest and most direct interdependence is reciprocal interdependence. Here the influence is mutual and direct among all persons as in basketball where each team members is in constant and close interaction with other members of the team and directly and immediately affect the performance of each other (see figure 7.2).

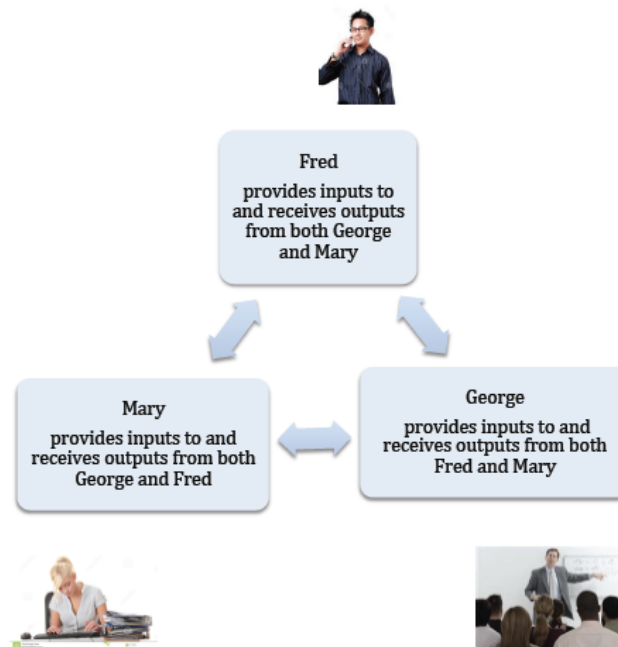


Figure 7.2: Reciprocal Interdependence

In somewhat weaker form of interdependence, sequential interdependence, each member is influenced by and influences others (see figure 7.3). The influence of each member on



the other members is indirect and only occurs via adjacent members. An example is an assembly line where each worker on the line receives as input the output of another worker on the line, and in turn, the worker's output is the input to the next person on the line.

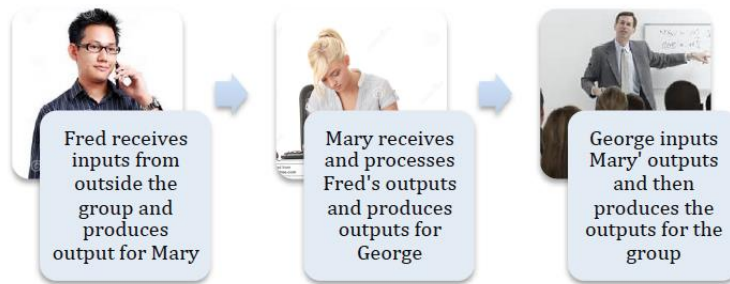


Figure 7.3: Sequential Interdependence

The loosest and most indirect interdependence is pooled interdependence where people contribute independently to an overall product but do not directly interact with each other in producing the output (see figure 7.4).

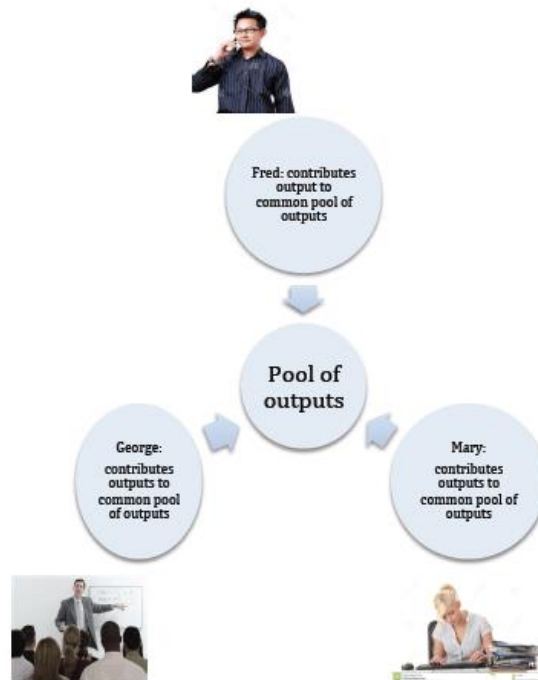


Figure 7.4: Pooled Interdependence

Take, for example, a pool of typists each producing manuscripts independently of the other typists. They do affect each other to the extent that each individual's output affects the total output, but they have little direct interaction. Thompson (1967) proposed that the level of interdependence is least in pooled interdependence. In these situations, there is little or no required interactions and the employees depend very little on each other to get

the work done. Rules and standardization of work activities are often enough to allow coordination of activities when there is pooled interdependence. As we move up the interdependency ladder to sequential interdependence, the work of one person depends more on the work of the others. Given the sequential nature of the relationships and the minimal amount of two-way interactions, one can successfully coordinate activities by adding to the mix of coordinating mechanisms planning and scheduling. When interdependency reaches the level of reciprocal dependence, and each employee must relate to every other employee in a two-way, give and take manner, coordination will require mechanisms of coordination based on lateral relationships among employees. Rather than relying on just rules and standardized procedures, coordination under conditions of reciprocal interdependence may include cohesive teams, group meetings, and liaison positions (also called link pins). Note that the lateral coordination required by reciprocal interdependence supplements but does not replace the more vertical, authoritarian mechanisms implied in the use of standardization, rules, planning, and scheduling.

### Interpersonal factors

The nature of the prior relationships among people can vary and serves as a powerful determinant of whether they interact and the nature of their interaction. An interesting example was provided in a study in which an after work mixer was arranged (Ingram & Morris, 2007). The basic research question was “Do people mix at mixers?” and to address this question the researchers hosted an after work mixer for 100 business executives from various organizations. These were not complete strangers and about a third of the invitees were acquainted with one or more of the other guests. The intent of this and other mixers is to encourage people to interact with a wider circle of people, but rather than mixing, the guests interacted mostly with people with whom they were already acquainted. This study demonstrated how our interactions with others tend to repeat the configurations that have emerged from past interactions. An obvious reason is that it is easier and less work to follow the established paths in our social world than to meet new people and stray from past patterns. These prior relationships also provide stability and are instrumental in achieving the objectives of a group or organization. Social structures emerge from habit (Ouellette & Wood, 1998), the outcomes of their performance of organizational tasks (Katz & Kahn, 1978), and the shared meanings that organizational members attach to organizational events (Rentsch, 1990), to name only three of the factors leading to the emergence of social structure.

Closeness and quality of relationship. The closeness and quality of the relationship is another factor to consider. Some relationships are characterized by strong, intimate, personal relationships in which employees bond as friends and are kept together by their personal attractions. An example is a family in which members are held together, not by any particular task that they are performing but their love and respect for one another. Here the personal needs of members define the relationship. Other relationships are more task-based. Members interact with one another to accomplish task goals as defined by the organization. The relative expertise and authority that members bring to the performance of the tasks define their relationships. In organizations, one will find relationships that are

primarily task-based, others that are close and personal, and still others that are both task based and personal. Classical and neoclassical views of organizations (see the chapter on history of I/O) proposed that effective organizations are based on strictly task-based relationships. The human relations approach emphasized personal relationships. The management of many modern organizations aspires to a mix of personal and task-based relationships that combine the best of both. The research suggests a contingency approach (see the history chapter) in which the right mix depends on a variety of factors such as the nature of the task performed.

Homophily. A very strong dynamic in the formation and maintenance of social interactions is the tendency for people to associate with similar others (Kleinbaum, Stuart, & Tushman, 2013; McPherson, Smith-Lovin, & Cook, 2001). This is referred to as homophily and seems to operate according to two distinct mechanisms. One is choice homophily in which people choose to interact with those who similar to themselves. Induced homophily occurs as the result of people being selected or self-selecting into situations that constrain who they can interact with. Thus, female clerical worker can choose to interact with other women but to the extent a disproportionate number of women are hired as clerical workers, their interactions will tend to be limited to other women because of their physical proximity and the similarity of their tasks and organizational positions. According to one review, the lines along which homophily occurs, in order of prevalence, are race and ethnicity, age, religion, education, occupation, and gender (McPherson, Smith-Lovin, & Cook, 2001).

Schneider and his associates (Schneider, 1987; Schneider, Goldstein, & Smith, 1995; Schneider, 2008) built on the notion of homophily to describe how entire organizations rise and then fall. According to his attraction-selection attrition (ASA) framework, an organization becomes increasingly homogeneous in the characteristics of its employees as the result of three forces. First, people are initially attracted to organizations that appear to fit their personalities. For instance, people with strong needs for competition and achievement are more attracted to an organization whose climate stresses competition and achievement than people with strong needs for affiliation. Second, organizations tend to select those people whose personalities fit the characteristics of those currently employed. Third, those who join the organization who do not fit the characteristics of current employees will tend to leave. Homogeneity can lead to increased success in the beginning but over time, organizations become ingrown and severely restricted in the range of types of people allowed to join (p. 444). This spells trouble if the organization must deal with a changing environment. The ASA model proposes that people make the place. In other words, norms, roles, and other structural forms emerge from the types of people drawn to a group or organization. According to Schneider, if an organization wishes to change, it should attract and retain different types of people rather than working exclusively on changing the structure of the organization.

## Personal factors

Personality traits. The personality traits that individuals bring to an interaction are important determinants of social process. Of the Big Five personality traits,

extraversion/introversion and agreeableness are most relevant. Employees who are extraverted are more likely to initiate interactions and attempt to influence others than introverted individuals. Employees who are higher on agreeableness are more likely to engage in friendly, cooperative interactions than those lower on agreeableness.

Knowledge, skills, and abilities. In addition to needs, the knowledge, skills, and abilities (KSAs) that individuals bring to the situation shape their interactions with others in that situation. For instance, employees who lack the KSAs required for the task and are aware of this shortcoming are probably less likely to initiate task-related interactions and more likely to wait for others to initiate action. Social skills are especially relevant to social interactions. People differ in their abilities to effectively communicate, influence, and cooperate and interactions among those that are more skilled are likely to differ dramatically from interactions among those who are less skilled.

Personal needs. People are also likely to interact when interaction fulfills personal needs. The needs for affiliation and esteem are perhaps most obviously related to why individuals might form a group, but groups can form to fulfill other needs such as hunger, security, and self-actualization. An additional reason that groups emerge is to define reality. People attempt to validate their personal beliefs (e.g., opposition to abortion, belief in God, advocacy of gun control) by joining with others who share similar beliefs. Social information processing theory, which was discussed in the module on work-related attitudes, proposes that an employee's feelings about his or her job are influenced more by the views of fellow group members than by objective reality (Salancik & Pfeffer, 1978).

Some interactions serve to fulfill primary task goals, as when two employees decide to collaborate and bypass the formal chain of command. This collaboration is not necessarily insubordination as much as a desire to get the job done. Similarly, the information that flows through the grapevine in an organization can provide valuable information that assists in performing tasks. Other groups form on the basis of purely personal attraction. Not surprisingly, people are more likely to form groups if they are similar in attitudes than if they differ on these and other personal characteristics (Lincoln & Miller, 1979). It is difficult to clearly separate where friendship ends and work begins in the informal networks that emerge within organizations. An unfortunate consequence of networks based on gender is that men may form an organizational network that effectively limits the career opportunities of women (Brass, 1985).

People must find interactions with others rewarding for those interactions to continue. In interactions that fulfill the needs of its participants, the participants will look forward to interacting with others in the network and are more likely to identify with the network whereas members of groups that fail to provide rewarding outcomes may drift away or look for alternative relationships. This does not necessarily mean that failure to achieve goals will always lead to the dissolution of a network. Sometimes failure is the trigger for even stronger interaction as the participants attempt to make sense of the failure or attach blame. In these cases, the network is fulfilling the need to make sense of the world.

Networks must succeed in some way to meet the needs of its members and those that fail to do so may cease to exist or continue in a minimal form.

Must be rewards: How do the successes and failures of the group affect social interaction?



Demographics. Age, ethnicity, and sex are potential antecedents of interactions but their impact is probably mediated by other factors. Homophily is often guided by similarity on demographic characteristics such that white employees are more likely to interact with other white employees, black employees with black employees, female with female employees, and younger employees with other younger employees. Another way that demographics can shape interactions is by evoking stereotypes and expectations. For example, Stereotypes that women have less managerial potential and are more passive, for instance, may lead men to interrupt, ignore, and talk in a condescending manner to them in group meetings.

#### Formal vs. informal social processes

Interactions that are formally defined in the procedures, chart, and rules of the organization are formal interactions. This does not mean that they are stuffy or polite but only that they are officially recognized by the organization. A cockpit crew and the airline attendants on a commercial airplane constitute formal relationships as well as a college football, bowling, and surgical team. By contrast informal relationships consist of two or more people who interact and influence each other but are not officially defined by the organization. One of the great insights of the Hawthorne studies is that informal relationships emerge and shape how the work is done. Management is often unaware of the informal organization. Indeed, the employees themselves are not always fully aware of the networks of relationships to which they belong.

Informal interactions are those that are not formally defined. Individuals in any organization come to interact more with some people than with others and frequently these differences in interactions are not required or expected in the procedures, rules, and chart defining the organization and its work. Let us assume that you observe design engineers in an organization working on the same project. You note that some of these engineers interact on a frequent basis for the obvious reason that they have been assigned

to work together on the same task and to report to the same boss. Many of the most interesting relationships you observe, however, are those that are not intended by the organization but instead emerge from daily interactions. You might, for instance, find that two of the design engineers are loners who work by themselves, whereas three others work together closely. Two employees from another unit are frequently observed in the offices of these three to chat about work and nonwork related matters. Moreover, one of the isolated design engineers has a personal relationship with a manager in another department. These types of relationships define the "hidden organization" and are as important as the formal relationships identified in the organizational chart.

A formal group will continue to exist as long as the management in an organization mandates its existence, even if it is not particularly satisfying to its members. On the other hand, an informal group forms and continues to exist only as long as it is rewarding to the participants. Informal groups emerge from the interactions among employees and may or may not coincide with the formal groups created to fulfill organizational goals. The emergence and continued existence of an informal group requires an opportunity to interact among a collection of people, followed by a reason for interaction, and rewards for continued interaction.

The remainder of this chapter addresses the questions of how social processes evolve to take on various characteristics and how these characteristics affect the functioning of the people who are parties to the interactions.

#### Points to ponder

1. The boundary between social process and structure is often blurred. Can you think of instances where social process became social structure in your own interactions with others?
2. Provide some examples of entitativity. In other words, identify some collections of people you have observed that have taken on identities as social entities. Why did entitativity occur and what were the consequences?
3. Provide additional examples of pooled, sequential, and reciprocal interdependence. What are some of the unique challenges presented by each form of interdependence for managing the people involved? Why is reciprocal interdependence considered a more complex form of interdependence than sequential and sequential more complex than pooled?
4. Think of times you have worked with others who are relative strangers and other times where you have worked with others who are close friends. How did your interactions differ? When were you successful in your performance of the tasks and when were you less successful? How did the closeness of the relationships play a role in your success or failure?

#### Communication Processes

Communication is perhaps the fundamental social process that underlies all of the processes discussed in this chapter and is perhaps the most important determinant of how

effectively people are able to work together in an organization. Communication occurs when two or more people exchange information and meaning. Words are certainly important in communication but this definition broadly construes communication as encompassing much more than words. People use not only words but also a variety of other vehicles that include facial expressions, gestures, posture, clothing, tone of voice, and even material possessions. Moreover, a lot of communication occurs without awareness as when a person unconsciously frowns in talking to a person who is disliked or leans forward in talking to a person who is liked. The communication process is described as an exchange of messages between the sender and the recipient. After describing some of the points of vulnerability in this process, the chapter considers special issues pertaining to matching the medium to the message and the use of computer-mediated communication.

### A model of organizational communication

Figure 7.5 describes communication as a one-way process. Organizational communications occur as two-way exchanges of information that are considerably more complex in reality than the process in this model. Nevertheless, the figure is useful in identifying some of the crucial determinants of whether a communication succeeds or fails. The model depicts a sender who encodes thoughts and feelings in a message and then transmits this message using a channel of communication. Another person receives the message and decodes it in a way that may or may not match the original encoding. The recipient responds to the message in some way and provides feedback to the sender on the outcome of the communication. The ideal is a situation in which senders translate their thoughts and feelings into messages in a way that accurately reflects the thoughts and feelings they intend to convey. Ideally, they then select the right mix of channels to send the message. The recipients interpret the message in a manner that is consistent with the intentions of the senders and then respond. The responses of the recipients provide feedback that the senders can use to determine the success of communication and adjust the message if needed. This is the ideal, but breakdowns often occur in the communication. Let us now examine the potential issues that can arise at each stage of the communication process.

### Points of vulnerability in the communication process

At the point of encoding, the senders may fail to translate their thoughts and feelings into words and nonverbal behaviors that capture what they intend to transmit. They also can inadvertently insert into their messages words, intonations, and nonverbal behaviors that leak thoughts and feelings that were not intended for public consumption. In transmission, noise can prevent the successful sending of messages. Another problem is that senders can distort the message by filtering, exaggerating, queuing, and dividing the message among multiple channels. Distortions are especially likely when the message must pass through many levels of the organization, the number of persons through which the message passes is large, there are physical barriers, and they occur as rumors.

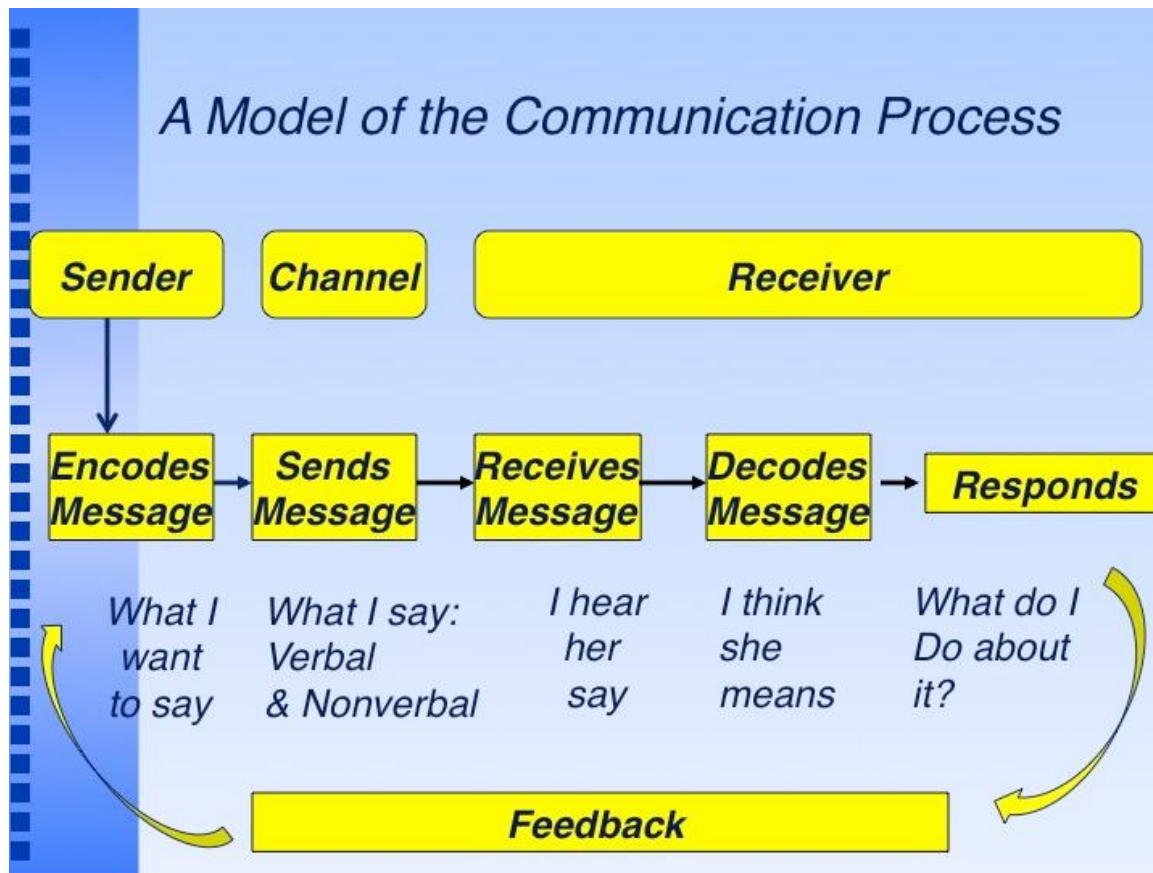


Figure 7.5: A Model of the Communication Process

Communications are vulnerable at the point of reception as a consequence of the recipient's expectations, emotional states, and differences in language. Finally, the failure of senders to receive feedback on their messages is an additional source of breakdowns.

Points of vulnerability in the encoding of a message. As indicated in the model, communication begins with the feelings and ideas of the sender, with the intent often being to focus on the ideas and suppress the feelings. The second step in the process consists of encoding in which the thoughts and feelings of the sender are transformed into a form that is transmittable. Contrary to the intent, feelings frequently leak into communications, so that the relationship between the sender and the recipient is conveyed as well as the content of the message. Thus, assume that the content of a message to a fellow employee is to hand over a tool. Depending on the facial expressions, tone of voice, and posture, however, "hand me that tool" could mean what it appears (i.e., I need a tool") or could communicate something much different (e.g., I think you are stupid").

1. Language differences. Encodings are often in the form of words and when the languages of sender and receiver differ, the failures are usually obvious. When senders and recipients have the same native tongue, the failures are subtler. Confusion and chaos can follow when the sender and receiver differ in their use of the same words. For



instance, employees in the same organization often come to share a similar jargon that is understandable to members of the organization but uninterpretable to those outside the organization. Examples of common corporate jargon are phrases such as “drinking the kool-aid” to refer to the blind acceptance of a corporate mission and “open the kimono” to refer to open communications. At Amazon.com, warehouses are called “fulfillment centers” and workers are called “associates.” Those who are familiar with the corporate culture and way of speaking will suffer no confusion, but to the uninitiated the language used within a company is often as mysterious as a foreign language. Communicating with language that is confusing can also be an intentional tactic for those attempting to influence others or prevent the loss of their own power. Allan Greenspan, the former chair of the Federal Reserve Board, was famous for making obscure and jargon-filled statements about the U. S. economy. Here he describes Fed-speak as constructive ambiguity:

In an interview with BusinessWeek in August 2012, when asked "about practicing the art of constructive ambiguity", Greenspan replied: “As Fed chairman, every time I expressed a view, I added or subtracted 10 basis points from the credit market. That was not helpful. But I nonetheless had to testify before Congress. On questions that were too market-sensitive to answer, “no comment” was indeed an answer. And so you construct what we used to call Fed-speak. I would hypothetically think of a little plate in front of my eyes, which was the Washington Post, the following morning’s headline, and I would catch myself in the middle of a sentence. Then, instead of just stopping, I would continue on resolving the sentence in some obscure way which made it incomprehensible. But nobody was quite sure I wasn’t saying something profound when I wasn’t. And that became the so-called Fed-speak which I became an expert on over the years. It’s a self-protection mechanism ... when you’re in an environment where people are shooting questions at you, and you’ve got to be very careful about the nuances of what you’re going to say and what you don’t say”. (Source: <http://en.wikipedia.org/wiki/Fedspeak>)

2. Speech intonation. A subtle type of verbal encoding is speech intonation, which is defined as a variation in the spoken pitch. Intonation in the form of up-talk in which a person raises the pitch at the end of the sentence can lead to an interpretation of the communication as a question or request for help. The same words without the up-talk at the end is more likely interpreted as a statement of fact or a directive. “There is a man crawling through window” with an upward inflection is interpreted as a query whereas without the upward inflection it is interpreted as a statement of fact. The meaning of a communication can radically change as a function of the emphasis one places on words in that message. Intonation can also include variations in the emphasis placed on particular words in a message. Relative emphasis is denoted with underlining.

I don't think we should do these tasks. Possible interpretation: In my opinion, we shouldn't do these tasks but others disagree.

I don't think we should do these tasks. Possible interpretation: you misinterpreted me...I said we shouldn't do these tasks.

I don't think we should do these tasks. Possible interpretation: I'm not really sure whether we do these tasks or not.

I don't think we should do these tasks. Possible interpretation: Somebody should do these tasks but not us.

I don't think we should do these tasks. Possible interpretation: Doing these tasks is just plain wrong.

I don't think we should do these tasks. Possible interpretation: We should do some tasks but not these.

3. Nonverbal behaviors. Nonverbal behaviors include eye contact, posture, arm and leg use, motions, touching, expressions, and micro-expressions, all of which are capable of hurting or helping communication. All of these are obvious except for expressions and micro-expressions. Macro facial expressions are nonverbal behaviors that involve the entire face, are obvious, are of relatively long duration (i.e., several seconds), and are often intentionally used to communicate a feeling or emotion. When a communicator is with family and friends and is not attempting to hide emotions, she may consciously use macro facial expressions and is usually aware of using these expressions. Seven basic emotions (see figure 7.6) are directly tied to specific facial expressions that are universal. These facial expressions generalize across not only human cultures but also nonhuman species such as apes and monkeys. A source of communication breakdown is if the emotion that the sender intends to communicate is inconsistent with the macro expression.

Micro-facial expressions are much more subtle than facial expressions. Unlike macro-facial expressions, which involve the entire face, a micro facial expression involves only part of the face (e.g., lip or eye movement). Their duration is extremely short, typically less than a second, and is not obvious to either the sender or receiver. Identifying microexpressions typically requires a careful analysis of videotapes to detect. Micro facial expressions are especially important when the sender is attempting to hide or not fully disclose an emotion to the recipient. Ekman and his colleagues found that micro facial expressions are sensitive indicators of lying (Ekman & O'Sullivan, 1991).



Source: Matsumoto, D. & Ekman, P. (2008). Facial expression analysis. *Scholarpedia*, 3(5), 4237.

Figure 7.6: The Seven Nonverbal Emotional Expressions

Emblems are movements that are directly translatable into a verbal message. Examples are the “A-ok” sign and the communication of the F-word with the middle figure. Because many emblems are culturally specific, they can become a source of miscommunication.



The hook-em horns sign used by University of Texas students to refer to their mascot (see below) ... a long horn steer ... is interpreted in Italy as your wife is having an affair.



Proxemics is the use of physical space and is another type of nonverbal behavior (Hall, 1966). In the United States, getting up close to another person (within 18 inches) conveys physical intimacy and is only used with close friends and family. In normal communication a distance of 18 inches to 4 feet is the norm. The acceptable distance is 4 feet to 10-12 feet at work, whereas in public with strangers, the distance that is more acceptable is 10 -12 feet or farther. The physical distances considered acceptable vary across cultures, however. In Latin American and Arab cultures, standing close to a stranger is quite acceptable, whereas the norm in Japan and Germany is for a greater distance between one's self and the other individual even in the case of close acquaintances. The norms for personal space in the United States and France fall in between these cultures. Standing too close or too far away can serve as another source of communication breakdown.

The nonverbal encoding of messages adds meaning to the words and allows senders to more fully convey their thoughts and feelings. Face-to-face communication is a "rich form of communication" whereas communication over the computer or through written messages is "lean" because so many of the nonverbal cues are missing. At the same time, misunderstandings and communication breakdowns often occur because of nonverbal messages. The sender is typically unaware of many of the nonverbal cues accompanying verbal messages. As a consequence, the feelings of the sender can leak into the message and have the effect of interfering with communication. Nonverbal behavior is, for the most part, inherently ambiguous and is only interpretable when the context, other nonverbal behaviors, and the words spoken are taken into account. As an example of context, consider crossing the arms and clenching the teeth. These behaviors are properly interpreted as resisting another person if there is a history of conflict and the other person uttered a threat. The same behaviors could simply mean that the individual is trying to stay warm if the room is cold. Nonverbal behaviors forming clusters are more easily interpreted. For instance, shaking one's fist, frowning, and bearing one's teeth are unmistakable signs of anger and aggression when they occur as a cluster. A single frown without these other behaviors is more ambiguous. Finally, the nonverbal behavior is only interpretable within the context of the words that are spoken. When the words are consistent with the nonverbal behavior, there is little ambiguity about the meaning of the

message. When the words are inconsistent with the nonverbal behavior, people tend to give more weight to the nonverbal behavior and less weight to the words spoken. Consequently, those who tell the boss that they like and respect him while smiling and maintaining eye contact is more believable than those who express liking and respect while frowning and avoiding eye contact. Those who exhibit such inconsistency are also evaluated unfavorably and are perceived as dishonest, less credible, confused, unlikable, and (Weisbuch, Ambady, Clarke, Achor, & Veenstra-Vander Weele, 2010).

Several findings are worth noting from the research on nonverbal cues. For one, the interpretation of a message depends a lot on the nonverbal behavior that accompanies what is communicated. A finding that is often thrown around is that 80% of the interpretation of a message depends on the nonverbal content (Mehrabian, 1971). Do not take the 80% value as a generalizable fact. The specific percentage that is attributable to nonverbal behavior is likely to vary considerably across situations. Nonetheless, it is correct to say that nonverbal behavior is a very important factor to consider and becomes more important when the verbal content and nonverbal content conflict. If an individual communicates that he is appreciative of the contributions of another person but says this with a frown, the recipient is likely to rely more on the nonverbal behavior in interpreting the message.

Points of vulnerability in transmission. Once encoded, the message is transmitted through a medium. Breakdowns can occur because of information overload, the direction and formality of the message, the number of organizational levels through which the message passes, and physical barriers.

1. Distortions of a message during transmission. There is always more information to convey than senders can transmit at one time in one message. In coping with this overload of information, senders resort to several means of reducing the information overload. These coping mechanisms can ensure that the message is interpreted correctly, but when they distort the message, the consequence can be a complete breakdown of communication. Miller (1960) described four primary ways a sender can distort the transmission of a message to deal with information overload: filtering, queuing, exaggeration, and multiple communication channels. These modes of distortion apply to a variety of circumstances and not just overload.

Filtering is omitting parts of the message or the entire message as it is transmitted. The sender may feel that the recipient does not need the information contained in the message or that it will harm or disrupt the recipient in some way. Also, senders are often concerned that they will suffer from a full transmission of the message, as in the embarrassment or shame associated with admitting a failure. An example of filtering is the MUM (Minimize Unpleasant Messages) Effect. This was the name given by Tesser and Rosen (1975) to an effect they observed in a series of experiments and you have probably observed in yourself on many occasions. Basically the Mum Effect is more likely when people transmit positive news than negative news. Still another variety of filtering that is frequently mentioned in the communications literature is censoring. Censoring usually refers to a decision to not send the message at all in contrast to

selectively sending parts of the message and not others. At times an individual may delegate to others the task of filtering communications. This type of filtering is called gatekeeping and the persons assigned the role of filtering are gatekeepers. We will return to the gatekeeping role when we discuss groupthink in the next chapter.

Queuing involves putting off the communication of the message until another time. The order in which messages in the queue are sent depends on some implicit or explicit set of priorities. A manager may on the basis of past experience decide that messages to some of his subordinates can wait because their jobs are nonessential to the performance of the organization or unit. He may decide that messages to other subordinates cannot wait because of the criticality of their tasks.

With exaggeration the various parts of the message are retained but the transmitted message still deviates from the message originally intended by the sender as the result of deemphasizing some parts of the message and emphasizing others. Take, as an example, Fred, a first-line supervisor in a manufacturing plant, who sees mechanical problems that will require expensive repairs. This is bad news because the plant is in the middle of a recession and cannot really afford such maintenance expenses. Although Fred conveys the problem to his immediate supervisor, the urgency of the needed repairs is minimized as the message passes through each level of management. By the time the message reaches the higher levels of management, the original statement by Fred that five need repairs before next Tuesday or we will suffer a shutdown may become "We may need a few minor repairs before next Tuesday to keep things going smoothly."

Multiple channels of communication is a fourth means of dealing with information overload in which the sender divides up the information among the various recipients. Rather than communicate all available information to all her Vice Presidents, the President of a corporation may communicate only the information relevant to financial matters to the Financial VP while communicating information relevant to human resource management issues only to the Human Resource VP.

2. Conditions under which distortion occurs. There are other circumstances in an organization that can lead to distortions in addition to overload. These involve the direction (i.e. up or down the hierarchy) and formality of the transmission, the number of levels through which the message must pass, and physical barriers.

Of the variables influencing the transmission of messages the direction of the communication is among the more important. Downward communication consists of messages sent by those higher in the organization in terms of authority to those lower in the organizations and subordinate to the sender. An example is a new policy statement that is communicated by the President to the Vice President, who then communicates it to the Plant Managers. The Plant managers communicate the policy to their first line supervisors who then communicate it to their employees. Upward communication consists of messages sent by those lower in the organization to those at higher levels. An example is an employee who notes a problem in the operating procedures and communicates this to his or her supervisor, who communicates it to the plant manager,

who in turn brings it to the attention of a Vice President. Horizontal communication (also called lateral communication) is among employees at the same hierarchical level and in the same organizational unit within the organization. An example is a unit within the organization consisting of employees, all at the same organizational level, who talk to each other on a day-to-day basis about the problems they have encountered in performing the work. Diagonal communications are messages that are sent among people who are not part of the same unit and are directed upward, downward, or lateral depending on whether the sender is transmitting a message to someone at the same level, a lower level, or higher level of authority. In diagonal communications a sender transmits a message to another employee who is at a higher hierarchical level but has no direct authority over the sender. The sender could also transmit a message to another employee at a lower level but does not report to the sender. Finally, the sender could transmit a message to another employee at the same level but who works in another unit.

Communication research suggests that downward communications about tasks, procedures, policies, and other topics important to the management of the organization often suffer in being incomplete. The messages on what to do may lack sufficient specificity or contain ambiguous language, but even when the messages are complete in stating what to do, they may not provide a rationale for complying with directives. The result is that recipients at the lower levels are uncertain as to how they should respond or may have doubts about the outcomes of their actions. This uncertainty encourages speculation as to what the message means and then the grapevine and rumor mills take over in which employees informally communicate in attempts to decipher the messages originating from higher level employees.

Upward communication also is subject to problems. Perhaps the greatest problem is that there is an insufficient amount of it. In most organizations the mechanisms by which employees can convey information up the chain are scarce. There are suggestion boxes, exit interviews, and open-door policies in most organizations but the extent to which employees use these mechanisms and the quality of the information provided are in doubt. Moreover, those at higher levels of the organization often are not interested in what subordinates have to say and those lower in the organization may perceive the costs of the upward communication as greater than the benefits. According to Katz and Kahn (1978), "The typical upward communication loop is small and terminates with the immediate supervisor. He or she may transmit some of the information to the next higher level, but generally in a modified form.... The open-door policy of some high-level officers ...generally contributes more to the self-image of the officer as an understanding, democratic person .... than to adequacy of information exchange" (pp. 447-48). The motives of those sending messages upward in the organization are often guided by the self-interest of the sender more than organizational objectives. In a classic study of upward communication, Read (1962) found that employees who were more ambitious to rise in the organization sent less accurate information upward to their superiors than employees who were less ambitious. The MUM effect appears to operate much more strongly in upward communications than in horizontal or downward communications. Upward communication is not important simply because those lower in the hierarchy desire involvement in decision making or have a need to express their opinions. Those

higher in the organization have the greatest need for upward communication. Executives, middle level managers, and supervisors need to hear from those subordinate to them in the hierarchy because the subordinates are closer to the work being done and can convey to higher level employees actual or potential problems and potential solutions.

Whether the communications are formal or informal is a factor to consider in identifying when distortion in transmission occurs. Formal communications are those communications that are officially recognized by the management of the organization. Emails, phone calls, videoconferencing, face-to-face scheduled meetings, memoranda, postings on the company website, speeches by executives at employee gatherings, and bulletin board postings are examples of formal communications. By definition, management does not recognize informal communications but nonetheless information communication the exchange of messages in any organization. These also include emails, phone calls, meetings, unsanctioned postings on the bulletin board, and writings on the bathroom wall. Unlike the formal communications, they are not defined as official and can occur either with or without the permission and awareness of management. Informal communications are inevitable and indeed constitute by far the largest share of communications in an organization.

The number of organizational levels through which a message must pass in transmission. The likelihood of filtering and distortion increases with the number of levels through which the message passes (Nichols, 1962; Davis, 1968; Read, 1962; O'Reilly & Roberts, 1974). Researchers in one study found that only 20% of the information originating with a board of directors made it through five levels of management to the lower-level operations employees (Nichols, 1962). Filtering and distortion also appear to increase as the size of a unit or organization increases. With large units, communications can fail not only because there are more people through whom the message must pass, but also because there is less overall participation and more dominance by a few members (O'Reilly & Roberts, 1977).

Physical distances and other barriers are hindrances to transmission. In an attempt to eliminate these factors, architects in the 1950s and 1960s introduced the open office plan that eliminates the fixed walls that separate employees in the traditional workplace. In most open offices, employees who work together are also located together. Although the intent is to enhance communication by making employees more accessible to each other, evaluations of the open office plan have provided mixed results (Sundstrom, 1986). The open office plan appears to encourage informal conversations, but it does not appear to improve formal communication and may violate personal privacy by making it difficult to engage in confidential conversations. A nationwide survey (Steelcase, 1978) revealed that workers in open offices found concentration and confidentiality difficult. Another study found that workers in open offices reported twice as many headaches as those workers in other office arrangements (Hedge, 1984). In summary, open offices make it easier for employees to communicate informally with one another, but noise and a lack of privacy are potential problems with this type of workspace. Do not necessarily conclude from this discussion that employers should abandon open office plans.



*Open office landscaping can reduce barriers to communication but creates other problems.*

Although they are not always optimal, organizations will continue to use open office designs because they conserve space, are less costly, and easily permit reorganizations of work units. Still, management should be aware of the potential for breakdowns in transmission in open office plans and take steps to avoid them. Employers need to consider the type of worker who will use the space and the impact on their attitudes and productivity. One question to ask is whether open office plans are better suited for some workers than others. In a study examining employee reactions to work space design, employees were surveyed on their perceptions of their work environment both before and after moving from a traditional closed office to an open office setting (Zalesny & Farace, 1987). The researchers found that managerial and professional workers perceived open office environments less favorably than clerical employees. The researchers speculated that the higher level employees disliked their new office setting because loss of defined (private) office space implied a loss of status. Another factor to take into consideration when designing work spaces is the type of activity or task that workers are performing. Employees who require confidentiality or privacy (e.g., counselors or therapists) are not well served by an open office plan. On the other hand, those employees who must interact and communicate freely (e.g., a marketing team) undoubtedly benefit from an open office plan. In addition, research has shown that people who work on complex or difficult tasks prefer very private (closed) environments, which facilitate concentration (Block & Stokes, 1989).

Points of vulnerability in reception. An especially important step in the communication process is the reception of the message. Serious misunderstandings can arise when the message does not catch the recipient's attention. Written messages often fail at this point. Thus, a supervisor's memo to "stop using the phone for personal calls is buried among all the other memoranda received that day or may end up in the trash with the junk mail. Failures in reception also occur because the amount of information exceeds the processing capacity of the recipient. In the reception of information, both individuals and



organizations have been shown to filter and distort (Miller, 1960). The same four means of coping with overload listed under the transmission stage of the communication process is applicable to the reception of the message. Recipients can filter out parts of the message or censor the entire message. They can exaggerate the message by emphasizing some parts and deemphasizing others. They can also delay the reception of the message through the use of informal or formal queues. The use of voice mail, email, and texting have all provided a convenient means for recipients to delay the task of reading and responding to messages by placing some messages at a higher priority than others. Finally, the intended recipient may use multiple channels by delegating the reception of the information. A manager may have her phone calls answered by the receptionist, emails by her executive secretary, and face-to-face visits to the office by the office secretary. As in the case of the transmission of information, the use of these various means of receiving information can either benefit or harm the effectiveness of the communication process.

The psychological state of the recipient is one factor to consider in examining the effectiveness of the communication process. A message that is clearly transmitted may still fail because the recipient's expectations prevent receiving the message as it was intended. If a person is expecting criticism, for instance, he or she may only hear a supervisor's negative comments and may fail to hear the positive comments. Another psychological state that affects reception is the type and intensity of emotions of the recipient. Intense emotions can lead people to focus their attention on a much smaller range of stimuli and ignore a large portion of the intended message (Easterbrook, 1959). Take for example a performance appraisal feedback session in which the supervisor evokes considerable anxiety and fear with comments about a shortcomings of the employee. Although the supervisor proceeds to praise the employee for other aspects of his performance, the employee's intense emotion may prevent him from hearing these positive things.

Points of vulnerability in decoding. Even if the words of a message are received, the communication only succeeds if the recipient decodes or interprets the message as intended. In decoding, the recipient interprets the message with his or her personal codebook, similar to a telegrapher's translation of a message in Morse code. Differences in the codes of superiors and their subordinates are seen as one of the most consistent and important determinants of breakdowns in communication (Jablin, 1979). The sender in encoding the message and the recipient in decoding the same message can operate on the basis of codebooks that can vary in the degree to which they are similar.

An obvious example of a breakdown in communication due to differences in the codebook is when the native languages of the sender and recipient differ. A word in one language may have a very different meaning in another language and can result in sometimes humorous and sometimes disastrous miscommunications. There are numerous examples of failures in the translations of advertisements for products and services from one language to another. For instance, Kentucky Fried Chicken found that its slogan "finger lickin' good" was interpreted as "we'll eat your fingers off" in China (for other funny examples check out <http://www.takingontobacco.org/intro/funny.html>).

Even for those sharing a common native language, senders and receivers can operate on the basis of different codebooks as a result of differences in education, training, and experience. Take, as an example, a supervisor who conceives of a "personal phone call" as any phone call that is not relevant to the tasks at hand and a subordinate who defines a "personal phone call" as a call that is made for frivolous reasons. In an empirical demonstration of the effects of cognitive codes on communication, Triandis (1959) measured the similarity with which supervisors and their subordinates conceived of the concepts art, friend, God, power, science, church, money, literature, sex, and theory. He found that supervisors and subordinates communicated more effectively the more similar their interpretations of these concepts.

Points of vulnerability in the response to the message and feedback. How the recipient behaves in response to the message is the next step in the process. The failure to respond as intended does not always reflect a problem of communication, but may, instead, indicate the recipient's lack of ability, knowledge, or motivation. In these cases, the solution is not to improve communications but to take other actions such as incentives, task redesign, or training to directly address the sources of the unintended response.

The last element of the communication in figure 7.5 is the feedback the sender receives as the consequence of the message. This might come in the form of acknowledgment on the part of the recipient that the message was heard and understood as well as evidence that the recipient has behaved as desired. One of the most effective ways of building a feedback loop into the communication process is to make sure that the recipient feels free to ask questions and give comments. This could involve asking the recipient to repeat the message back to the sender. After the sender corrects any misinterpretations, the recipient repeats the message again. This cycle continues until both parties are satisfied that the message was correctly received. Without feedback a sender can imagine how things are going but is never entirely sure if the message is being received or decoded as intended.

#### Picking a medium appropriate to the message

In attempting to understand communication processes in an organization, it is especially important to examine the media that people choose and the effectiveness with which they use them in communicating. Different situations call for different media. The degree of congruence between the characteristics of the medium or channel and the characteristics of the message is a particularly important issue in determining communication breakdowns and distortions at all stages of the communication process. Lengel and Daft (1988) propose that the effectiveness of communication is a function of the match between the richness of the medium and the richness of the message (see figure 7.7). The richness of a medium is defined by the number of cues involved, how quickly feedback occurs (i.e., immediacy), the flexibility afforded the communicator in using words to tailor the message, and the extent to which personal emotions can be expressed in the message. A rich medium is one that can convey simultaneously, multiple information cues and to provide rapid feedback and a personal focus. A hierarchy of communication medium richness is displayed in figure 7.7.

Face-to-face conversation is the richest, and possibly accounts for the fact that it is also the favorite medium of people in organizations (Brenner & Sigband, 1973; Burns, 1954; Carlson, 1951; Conrath, 1973; Hinrichs, 1964; Housel & Davis, 1977; Klemmer, 1971; Mintzberg, 1973). Telephone conversations are also a rich medium but lack the personal impact and diversity of the nonverbal cues present in face-to-face interaction. Even lower on the richness hierarchy are memos, emails, and faxes, all of which contain limited cues, are impersonal, and provide little feedback.

Daft and Lengel (1984) proposed that senders should choose a communication medium that possesses a level of richness appropriate to the routineness of the problem. For highly routine problems, a lean medium is most effective, but a rich medium is needed when the problem is nonroutine. For example, if an executive needed to discuss the personal problems an employee was having with his or her peers, a face-to-face conversation is better than a memo. If the intent were to communicate a simple, uncontroversial policy concerning use of the photocopier, a memo is better than calling a face-to-face meeting.

### Gossip and rumor

The two types of informal messages are gossip and rumor (Michelson & Mouly, 2000). The distinction between the two is blurred but gossip usually refers to a message in which information of an evaluative nature is sent regarding a third party who is not part of the communication (e.g., “Fred is having an affair with his secretary”). According to some accounts, gossip makes up as much as 65% of speaking time (Dunbar, 2004) and is motivated by ego or status needs (Michelson & Mouly, 2000). One can further distinguish between positive and negative gossip (Grosser, Lopez-Kidwell & Labianca, 2010; Grosser, Lopez-Kidwell, Labianca & Ellwardt, 2012). Both positive and negative gossip are likely to spread within friendship communication networks, but only positive gossip is likely in the communications that occur among employees who are working to accomplish tasks (i.e., instrumental communication networks). Gossip is common in the process of forming friendships in an organization (Ellwardt, Steglich & Witteck, 2012). Employees who exchange gossip are more likely to become friends, but there is a point of diminishing returns in using gossip to connect to others. Employees with very high levels of gossip tend to have fewer friends in the communication networks within an organization (Ellwardt et al, 2012). Also, gossip is not well received by supervisors. Those employees who gossip more receive lower performance evaluations from their supervisors (Grosser, Lopez-Kidwell & Labianca, 2010).

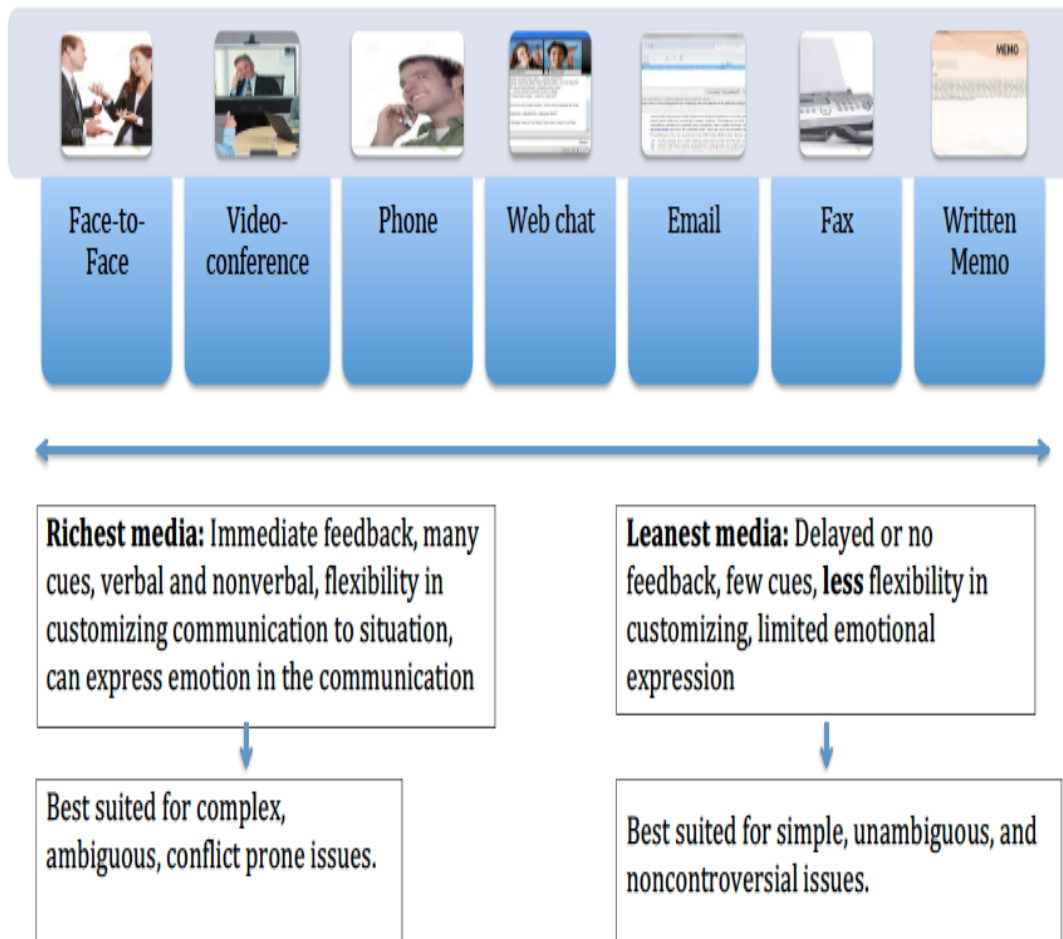


Figure 7.7: The Media Richness Continuum

In contrast to gossip, rumor is basically an unconfirmed hypothesis about something that is of widespread interest and is motivated by a desire to reduce uncertainty about events in the situation (Rosnow, 1990). Rumors are more public and are broadcast more widely in the grapevine than gossip. Rumors appear most likely to spread when there is uncertainty about future events in an organization or the possibility of an impending change (Bordia & Difonzo, 2013). Rumors are messages that are unverified and have doubtful veracity. They usually arise when they are important to the sender and there is uncertainty about the topic of the rumor. Rumors are most often about the hiring, firing, or transfer of employees, possible layoffs, and the reputation of the firm (DiFonzo & Bordia, 2000). Although rumors can be quite destructive, they also can reduce employee stress and instill a sense of control. They can also constitute attempts to remedy perceived injustices. Employees who perceive that management has violated job-related promises are more likely to seek revenge through spreading rumors (Bordia, Kiazad, Restubog, DiFonzo, Stenson & Tang, 2014).

One of the authors of this book observed a vicious round of rumors aimed at an unpopular faculty person that falsely accused the faculty person of a variety of unprofessional and unethical behavior, including sexual harassment, plagiarism, and alcohol abuse. The accusations were unfair, false, and extremely damaging to the faculty person. They were cruel and should never have occurred, but they did allow the students who generated the rumors to exert control over the situation and take action against a person they considered to have treated them unfairly. Rumors are not always so destructive but regardless of their impact, they are usually motivated by the needs of the senders.

For better or worse, the grapevine is a means of rapidly disseminating rumors and gossip. Although it is possible that these communications can harm people and the organization, the general sentiment among researchers and theorists is that gossip and rumor are inevitable and can occasionally benefit the organization (Crampton, Hodge, & Mishra, 1998). Given their inevitability and the possibility that they can benefit the organization, it is a waste of time for management to try to stifle these types of communication.

Crampton et al (1998) reviewed the research and summarized some of the findings:

1. It is estimated that 75 – 90% of rumor and gossip are accurate. Consistent with these findings, employees tend to believe the grapevine more than formal communications.
2. Grapevine communications are faster than formal communications.
3. Employees are more likely to resort to rumor and gossip when they are under stress, information from management is limited or ambiguous, and when they feel insecure.
4. Employees are more likely to use gossip and rumor when the messages are important to them. In other words, grapevines do not persist because they are a means of passing on trivia.
5. Rumor and gossip can reduce stress, allow employees to interpret ambiguous information, identify problems, provide early warnings, and help strengthen the culture of the organization.
6. Rumor and gossip foster closer relationships among employees, are a means of socializing new employees, and are an important means of fulfilling basic needs for affiliation and belonging.
7. Senders can use rumor and gossip to increase their power.

#### Points to ponder

1. Think of a recent instance in which you have communicated something to another person. Trace through the steps in the communication process using the model of communication presented in this chapter.
2. One potential source of communication breakdown is that feelings or thoughts “leak” into the encoding of the message even though the sender did not intend to send those thoughts or feelings. Provide some examples of how this has occurred in your own life. What were the circumstances that led to these leakages and what were the consequences?

3. How are positive and negative feelings about another person leaked into the transmission of a message through nonverbal behaviors? Describe the specific nonverbal cues and whether they convey positive or negative feelings.
4. We often must communicate with others in situations in which the recipients are having to contend with many other messages, have other tasks to perform, and must contend with noise. As a sender, how can you make sure that the recipient receives the message you send and interprets it the way you intend? Provide specific examples.
5. Provide some examples of instances from your own life of instances in which the message sent by you or another person did not match the medium. Why did the sender use an inappropriate medium and what were the consequences?
6. What difficulties do members of a group encounter when trying to perform tasks via computer communications? What are ways in which an employee can deal with these difficulties so as to maximize the productivity of the unit?
7. Think of some of the communications that you observed that were sent through grapevines. What was the nature of each communication and why did it spread through the grapevine rather than through more formal communication channels? Did the grapevine serve a useful or a harmful function in spreading the message? Why or why not?

### Social Exchange Processes

Social exchange is the second general category of social process and involves people in the organization trading resources and attempting to make sure that their rewards outweigh their costs. Many of the social interactions occurring in an organization consist of transactions in which one person offers resources to the other person and in return receives something from that individual. There are costs involved in the transactions as well as benefits and the motivation of each party to the exchange is to maximize the positive and minimize the negative. Social exchange theory proposes that all interactions among people constitute social exchanges, even love and marriage (Rusbult, 1980). Explaining something as personal as love as an exchange that continues as long as it is profitable (i.e., rewards are greater than costs) may strike some as a cynical view of human nature. One might protest and say that remaining in a loving relationship cannot be reduced to rewards and costs. Social exchange theory would counter by stating that an important part of any continuing relationship is achieving a favorable balance sheet in the transactions with the other person. According to Homans (1958) “Social behavior is an exchange of goods, material goods but also non-material ones, such as the symbols of approval or prestige. Persons that give much to others try to get much from them, and persons that get much from others are under pressure to give much to them. This process of influence tends to work out at equilibrium to a balance in the exchanges” (p. 606).

In an organization people are observed exchanging a variety of resources. Foa and Foa’s model of social exchange (1974, 1980; see figure 7.8) propose a two-dimensional theory defining the various resources exchanged in human interactions. The first dimension contrasts particularistic vs universalistic resources. The value of particularistic resources is tied to the particular relationship whereas the value of universalistic resources generalizes across relationships. For example, love is highly particularistic in that its

value depends on the particular relationship in which the exchange occurs whereas money is universal and its worth is independent of the relationship. The other dimension contrasts concrete vs. symbolic resources. Concrete resources are tangible objects that one can see, feel, and touch such as goods and services. Symbolic resources are abstract and would include information and status. Six resources are identified within this model: love, information, services, goods, status, and money and their location in the two-dimensional space is presented below:

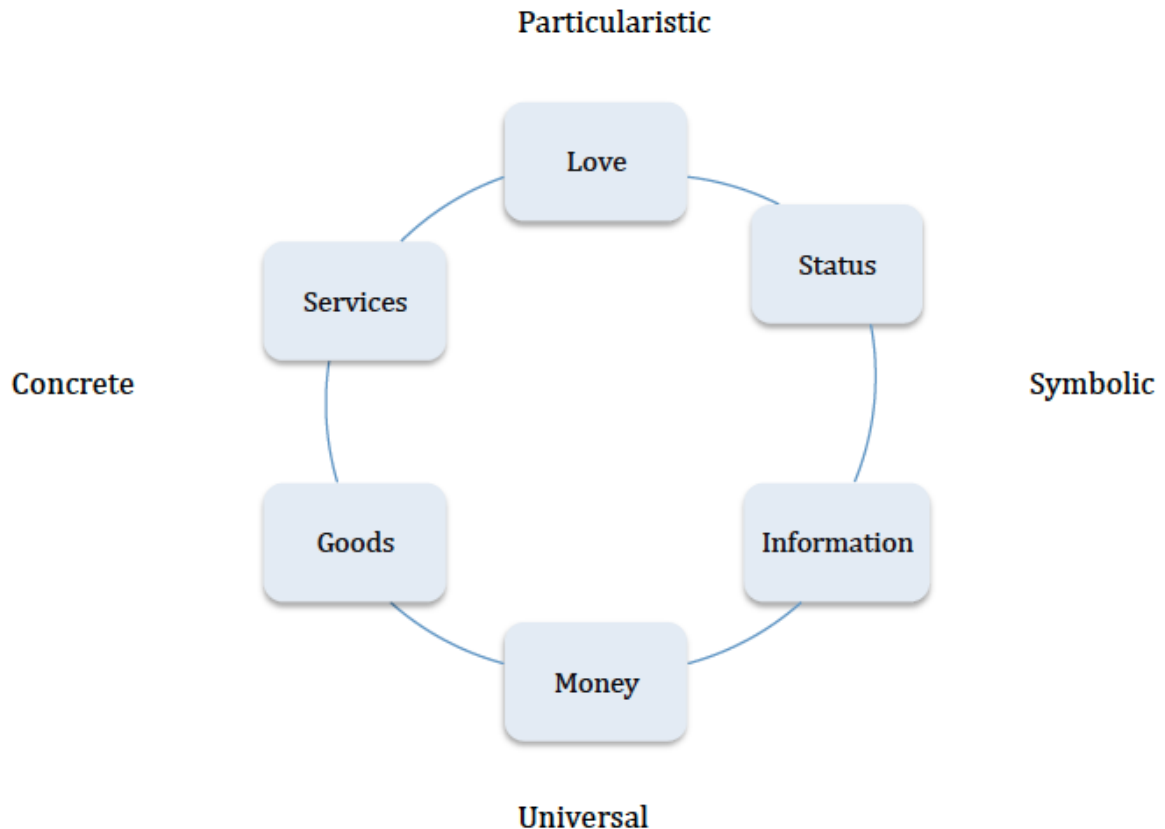


Figure 7.8: Foa and Foa's Resource Exchange Model

One proposition in the model is that the closer two resources are, the more similar they are perceived to be, and the more likely they are to be preferred as the resources in a social exchange. The farther apart they are, the more dissimilar and the less appropriate they are seen as the basis for a social exchange. Consequently, goods and money, or information and money, are appropriate bases for a social exchange, but love and money or goods and status are much less appropriate. In an experimental test, the authors provided messages that conveyed a resource being given to the recipient, e.g., "I feel affection for you (love)", "you do things very well (status)", "here is my opinion (information)", "here is a package for you (goods) and "I ran that errand for you (services)." Under the guise that they were sending the message, each participant was to state how much they would like each of the six categories of resources from the recipient in exchange for what they had conveyed. Consistent with the model, resources sent in response to a communication that match the resource initially sent are preferred over

resources that do not match. For instance, in response to providing status, the participants most preferred receiving status in return, followed by love, information, services and goods, and money, in that order. In response to providing love, the participants most preferred receiving love in return, followed by status, information, goods, services, and money, in that order. Similar distinctions are probably needed when we examine the resources exchanged in organizations. For instance, Cropanzano and Mitchell (2005) distinguished social from economic resources and considered the potential for mismatches in exchanges when economic and social resources are exchanged.

In addition to distinguishing among social exchanges on the resource that is exchanged, one can also distinguish among negotiated, reciprocal, and generalized exchanges (Flynn, 2005). In negotiated exchanges there is an open discussion of potential outcomes given and received as well as the rules that govern the negotiation. The focus is more on the outcomes of the particular exchange that constitutes the negotiation and less on future exchanges among the negotiators. An example is Fred offering to help Ralph only if Ralph agrees to provide benefits in return to Fred. As the result of a negotiation they agree on the extent of helping and the nature of the compensation to Fred for his help. In reciprocal exchanges people avoid explicit discussion of benefits and costs or the procedures used in the exchange. They instead expect that when they give something to another that individual will reciprocate. In generalized exchanges the transaction occurs among 3 or more persons who belong to the same group, and reciprocity is indirect rather than direct. Members of the group do not expect that a specific recipient will reciprocate the exchanges they initiate; neither do they expect that they must reciprocate what specific persons in the group provide them. Instead, a collective concern about the welfare of the group guides the exchanges. An example of a reciprocal exchange is Fred helping Ralph with his work without any discussion of what Fred will receive in return but with the strong expectation on the part of both that the favor will be returned. Later Ralph returns the favor by helping Fred. An example of a generalized exchange is if Fred helps Ralph and is then helped by Susan and George, both of whom are part of the group to which Fred and Ralph belong. In generalized reciprocity the giving and receiving of resources contributes to an overall feeling of solidarity in the group and it is that solidarity that guides the exchanges rather than obligations that emerge between two specific individuals.

In social exchanges there are two primary bases according to Thibaut and Kelley (1959) for evaluating how well rewards outweigh the costs of the transactions. The Comparison Level (CL) is the personal standard that the person uses in reacting to the outcomes. These internal standards reflect past experience, needs, preferences, values, and other factors that are idiosyncratic to the person. Consequently, if a worker has a high need for status and is used to receiving promotions and other recognition, his CL for status is relatively high compared to a person who places little value on status. If the outcome received in the exchange surpasses the CL, the individual feels rewarded, but if the outcomes fall below the CL, the individual feels pain or punishment. The other basis for evaluating rewards and costs is the Comparison Level for Alternatives (CL<sub>alt</sub>). This is based on the best payoff that the person could receive in an exchange with some other person or organization and is the worst outcome that the individual would accept and stay



in the exchange. If the outcomes received fall below the CLalt, the exchange becomes more unstable and the individual is more likely to leave the exchange for better returns. A person might be quite happy with his or her job, salary, coworkers, and supervisor, but if that individual becomes aware of jobs that would afford even more satisfaction, thoughts about leaving are likely to be triggered and the ultimate consequence may be that the individual leaves. The most satisfying, stable exchange occurs when the outcomes are positive and surpass both the CL and the CLalt. The least stable and most unsatisfying exchange would occur when the outcome falls below the CL and the CLalt. One message of social exchange theory is that in their exchanges employees are continuously involved in judging how well their rewards surpass their costs both in terms of their past experiences and needs as well as in terms of those in similar circumstances with whom they compare themselves.

Social exchanges that occur between individuals generate obligations and rules that govern the exchanges. One concept that is used to represent these obligations is the psychological contract, a construct that is usually attributed to Schein (1980). The psychological contract is a set of promises that employees believe the organization has made to them and a set of obligations to the organization that are expected of the employee in return. The psychological contract is seldom put into writing or made into a formal, legal document, but nonetheless acts as a powerful force in shaping the exchanges that occur in the organization between employers and employees. A typical psychological contract is the expectation that employees follow the rules and work hard, and in return, the organization promises to provide rewards in the form of security, promotions, and financial rewards. The psychological contract often goes beyond these tangible benefits and includes a promise to treat employees with dignity and respect and to recognize and support their nonwork lives. When the psychological contract is breached as the result of employees perceiving that the organization has not fulfilled promises, employees exhibit lower satisfaction, mistrust, lower organizational commitment, higher turnover intentions, lower job performance, and less organizational citizenship behavior (Zhao, Wayne, Glibkowski, & Bravo, 2007). Some have questioned the methodology and conceptualization of some of the constructs associated with breaches with psychological contracts (Montes & Zweig, 2009). Still, there seems little reason to doubt that when employees believe that an organization has violated promises, irreparable harm is done to management-employee relationships.

One could argue that in the current global economy, where layoffs of employees are routine, organizations are not making promises as they did in the past and employees are not as keen to monitor violations of the psychological contract. The typical career according to some observers no longer follows the past model in which employees could expect a stable upward progression within a single organization. Instead, employees pursue what some organizational psychologists have called protean careers (Hall & Moss, 1998). In a protean career, employees are responsible for their own careers. A protean career does not consist of the progression through positions in an organization that was common in the past. Instead, it consists of a more varied set of educational, training, and work experiences in several organizations and may even involve changes in occupations. The element that integrates a protean career of an individual is not an organization but

instead the needs of the individual and the choices made in the search for self-fulfillment. Success is not defined by external standards of an organization but by the internal standards for psychological success held by the individual.

Points to ponder:

1. What do you think of the notion that all social behavior is basically an exchange of material and nonmaterial goods? Do you believe this approach can provide the basis for understanding social processes in organizations and help in the management of people at work?
2. Think of examples you can recall where the social interactions among one or more people involved the exchange of resources that were incongruent as defined in the Foa and Foa model.
3. How do effective working relationships differ from ineffective working relationships on the extent to which they are characterized by negotiated, reciprocal, and generalized exchanges?
4. Define CL and CLalt and their impact on how people evaluate their relationships.
5. Do you think your own career will follow a protean path or a more traditional linear path? Which path would you most prefer and why?
6. How is a psychological contract similar to and how does it differ from a contract as we usually define it (e.g., a written, formal labor contract between an employee and an employer)? Can you provide examples of psychological contracts in your own life?

### Cooperation, Competition, and Conflict Processes

In observing people at work in an organization, one will see some of them working together to achieve their goals, and others working against each other. Some may even appear to declare war on each other as they ridicule, demean, and in other ways block the activities of others. Competition, conflict, and cooperation are three different but interrelated social behaviors that constitute another category of social processes.

There is disagreement among organizational scholars on how best to define these processes, but the discussion in this chapter will follow the distinctions made by Tjosvold (1986). Conflict is defined as activities that are incompatible in that one person's activity obstructs, interferes, impairs, or in some other way lessens the effectiveness of another person's activity. Competition and cooperation are influenced by the interdependence of goals as perceived by two or more people. Competition arises when the achievement of one person's goal is seen as negatively related to the achievement of another person's goal, as in a footrace, in which one person's win necessitates another person's loss. Although competition may lead to conflict, they are not the same. For instance, a marathon runner competes with others but he or she is not likely to engage in activity that interferes with or obstructs the running of the other racers. In some competitive situations, conflict is part of the competition. Take, for instance, boxing and American football, both of which allow behavior that obstructs the activities of others as long as rules are followed. For the most part, organizations often encourage competition but try

to avoid conflict. Cooperation occurs when the achievement of one person's goal is seen as positively related to the achievement of another person's goal.

Crucial to building an effective organization is developing an attitude that "we are all in this together and we will only win if we all win." It is possible that people can conflict but still maintain an overall cooperative relationship. For instance, employees seeking a creative solution may play the devil's advocate and argue heatedly against each other's solutions while defending their own positions. Yet, this conflict can occur in an atmosphere of cooperation in which they see arguing as beneficial to achieving the organization's goals. The wielding of influence and power inevitably leads to some competition that is beneficial in energizing individuals, shaking them loose from their habitual routines, and pushing them toward achieving their potential. The danger is that what is intended to as a healthy contest turns into a destructive fight that hurts the performance of the organization and prevents future cooperation. Indeed, some of the failures of the U.S. economy in recent years have been blamed on self-defeating conflicts in organizations and the apparent inability to cooperate (Kanter, 1989).

While competition is still revered in American culture, there is a trend among some of the largest firms to encourage collaborative efforts between as well as within firms. Crucial to the effectiveness of organizations is being able to manage competition so that people can disagree and still work together to achieve their common objectives. In observing social process, then, we need to look for possible conflicts, the causes of these conflicts, and methods that are used to resolve them. As in the case of the other social processes, conflict and conflict resolution are a function of contextual factors, such as scarcity of resources, as well the personalities of the individuals involved.

#### Contextual factors affecting cooperation, competition, and conflict

The sources of conflict usually reflect factors in the organizational context. Walton and Dutton (1969) and Robbins (1974) have discussed several such factors, including task interdependence, goal and reward structure, competition for scarce resources, communication obstacles, and various uncertainties about who has control over what and whom.



*Task, physical, and organizational factors can lead to competition and conflict*

Task interdependence. The extent to which the work of two people depends on the work of others is a double-edged sword in its influence on conflict and cooperation. Points of greatest conflict as well as cooperation in an organization occur where people depend on each other the most (Dutton & Walton, 1972). In general, one might expect that when employees perceive that their success depends on the success of their coworkers, they are more open to cooperation and less apt to engage in activities that might provoke conflict (Chen, Tang & Wang, 2009). Yet, when successful performance of one person or unit depends on the performance of another, the failures to cooperate of the other is more likely to impact one's own performance and provoke behaviors that could escalate into conflict. By comparison, in a situation of pooled interdependence where there is very little interdependence in an organizational unit, one could expect less conflict. All things held constant (which they never are), a high level of task interdependence is more likely to encourage cooperation and discourage competition and conflict. If people know that their success at a task depends on the success of coworkers, they will think twice before starting an argument. Whether or not cooperation or conflict emerge from these "hot spots" of interdependence depend on other variables that moderate the impact of interdependence on conflict and cooperation. One such moderator is the extent to which one person in the relationship has more power over the other. Hershcovis, Reich, Parker and Bozeman (2012) found that aggression against a target employee was highest when the perpetrator had high power over the target and the interdependence between the two was low. This suggests that conflict is encouraged when there is a power imbalance in favor of the perpetrator and few consequences of initiating conflict.

Goal and reward interdependence. The impact of task interdependence on cooperation and conflict depends on the situation, but the impact of goal and reward interdependence is much clearer. Whether conflict occurs in an organization depends to a large extent on the formal goals defining task achievement and the rewards given to people for their performances. A cooperative goal structure positively links the goals of employees so that one person achieving his or her goals helps others achieve their goals. In an individualistic goal structure, there is no such correlation; the achievement of one person's goals is unrelated to the goal achievement of others. A third type of goal structure is a competitive or contrient goal structure in which the goal attainment of one member is negatively related to other members' goal attainments. In other words, individual members cannot attain their goals unless other members fail in theirs and their success means your failure.

Similar to goal structures, people are rewarded for their collective efforts (cooperative rewards), their individual performance independent of others' performance (individualistic rewards), or on a winner-take-all basis (competitive rewards). The individualistic orientation of organizations in the United States has led to an emphasis on individualistic and competitive structures. Many a manager has felt that the surest way to improve productivity in the work force is to pit employees against each other and see who comes out the winner. The unfortunate consequence of this competition is that too often everyone comes out a loser. Research suggests that competition is not the best approach if the parties involved must cooperate to get the job done. Indeed, if cooperation is essential it is often dysfunctional to treat individual workers as purely independent.

Rather, if cooperation is essential, it is important to reward individuals for their contributions to the team and the success of the team. Blau (1954) provided a famous example of the dysfunctional consequences of competitive rewards in a public employment service. The employment counselors in this agency were to keep track of job openings and then match those clients who best fit the available openings. A decision was made by management to evaluate each counselor on the basis of the number of clients that he or she placed in jobs. As a result, the employment counselors hoarded information on job openings rather than sharing with other counselors. This hoarding spawned conflict and a lack of cooperation. Experiments have further demonstrated the harmful effects that competitive reward systems can have on the performance of an organizational unit's tasks.

In one of the first experiments addressing this issue, Deutsch (1949) had students in a class work on a project under one of two conditions designed to induce cooperation or competition. Some individuals worked under a cooperative reward system. With this reward structure project teams were rank ordered on their performance and individuals within each team received the same grade based on the team's performance. Other individuals were assigned to teams in which there was a competitive reward system. Here team members were ranked on their individual contribution to the team product and then graded according to these individual contributions. The course grade of each student was based on how they individually ranked on their performance on the projects relative to other members of the team.

The students working under cooperative reward structures were found to work together more effectively: They were more likely to coordinate their activities with fellow team members and to show higher quantity and quality of performance on course projects than students who were rewarded competitively. Subsequent research has supported Deutsch's (1949) contention that cooperative reward systems achieve better results than rewarding people competitively (Johnson, Maruyama, Johnson, Nelson, & Skon, 1981; Johnson, Johnson, Roseth & Shin, 2014; Stanne, Johnson, & Johnson, 1999). Moreover the research tends to show that imposing cooperative reward structures is even more effective than imposing individualistic reward structures and that the findings hold up across a variety of countries. One caveat is that most of the research on cooperative vs. competitive reward systems was done with pre-college students in the classroom. Less research has been conducted in organizational settings with employees.

Despite the limitations of previous research, it appears clear that simply rewarding people for their individual efforts, regardless of how others perform, can induce competition and conflict whereas imposing a cooperative reward structure where people must cooperate to achieve rewards can have a variety of benefits and is much less likely to induce conflict. In explaining the effects of goal structures, one needs to distinguish both the effect of reward systems and task interdependence. In other words, not only know the extent to which rewards given to one employee depend on the rewards given the other employees, but also know the extent to which the effective performance of a task requires cooperation among employees. In a situation in which cooperation is important to performance of the task, as was the case with the class projects in Deutsch's study,

rewarding performance on a competitive or individualistic basis may encourage competition that detracts from effective performance. On the other hand, if the task does not require cooperation, competitive and individualistic rewards might even boost performance. Another important factor to consider is the power differential among employees. Coleman, Kugler, Mutchinson and Foster (2013) found that a win-loss situation in which one person's success was perceived as hurting the performance of the other was most likely to provoke conflict when the perpetrator had more power than the target of the conflict.

Supply of resources. Closely related to the effects of reward and goal structures is the conflict that can emerge when different units within an organization have limited or scarce resources. Conflict can occur over concrete resources such as money, supplies, personnel, or space. An all-too-common example in universities are the "space wars" that can occur among academic departments for rooms and other physical accommodations. Competition can occur over abstract resources as well, such as prestige, popularity, or power. When resources become leaner as the result of budget cuts, employees are more inclined to compete for resources and this competition can degenerate into conflict (Tjosvold & Poon, 1998).

Physical features that facilitate and interfere with communication. By necessity, the organization must restrain communication to some extent through physical separation and organizational arrangements. Different functional units (e.g., marketing, production, research and development, finance) are usually located in different places. Also, employees seldom have direct access to employees in other functional units but must usually go through channels. The inability of those involved to openly communicate their intentions can lower trust and can serve as another source of conflict. Openness is not always a panacea for conflict, however. Ashkanasy, Ayoko and Jehn (2014) propose that a high density, open office physical arrangement not only lead to open communications, but also distractions, lack of privacy, and excessive stimulation. These, in turn, arouse frustration and anger and are conducive to conflict.

Status incongruence. Status refers to the rank or worth attributed to an employee by other employees. Status is achieved when it results from the efforts of the employee, as in the case of status afforded by the education and training of the individual. Status is ascribed when it is inherited or in some other way acquired as the result of factors that are outside the employee's control. Depending on what members of the team or organization value, ascribed status could result from such factors as race, sex, religion, or color. When persons of higher status are dependent on those of lower status, the resulting status incongruency can easily stimulate conflict. A particularly common source of conflict is when a low status employee initiates work for a higher status employee. A classic example was provided by Whyte (1949) who found that conflict between waitresses and cooks in restaurants often occurred because of the incongruence in status associated with the lower status waitresses giving customer orders to the higher status cooks. Shrum (1990) provided a more recent example in a study of urban planners.

Ambiguity of work responsibilities. Another common source of conflict is uncertainty over who should do what, how they should perform their tasks, and the relative responsibilities of employees. When there is a lack of accountability for the performance of units in an organization, disagreements arise over who has responsibility for successes and failures. Role ambiguity can lead to interpersonal conflict and a variety of negative consequences, including turnover (Hill, Chênevert, & Poitras, 2015).

Organizational differentiation. Perhaps the most common antecedent of conflict in organizations is the organizational differentiation that occurs as the result of division and specialization of labor. Lawrence and Lorsch (1967) observed that the various departments within an organization differ on the formality of their structures (low vs. high), the extent to which they are task oriented versus relationships oriented, and their orientation to time (short term vs. long term). For example, the sales department is characterized by a shorter term orientation to time, more formality in structure, and a greater focus on interpersonal relations than a research department. As the result of these organizational differences, people develop very different views of the way they should perform their duties, and these differences in orientation can lead to conflict. In a more recent demonstration of the effects of structural differentiation, Page (2009) reports that the more different tasks performed by coal mine workers is positively related to the number of accidents and injuries. According to the author, a differentiation in tasks is associated with more diversity in information, and this diversity leads to misunderstandings and failures in coordination.

#### Personal causes of cooperation, competition, and conflict

Despite the importance of contextual factors, conflict is most often blamed on the characteristics of the individuals involved in the fight. This commonsense notion is overly simplistic, but is not completely without merit. Some people do seem more predisposed to aggressive, noncooperative behavior than others (Mitsopoulou & Giovazolias, 2015). Moreover, personality appears related to the success at attempts to resolve conflict (O'Neill & Allen, 2014). More conflict and less successful conflict resolution are associated with higher scores on secondary psychopathy, measured with self-report items such as "I have been in a lot of shouting matches with people." Also, supervisors with more emotional intelligence appear more likely to engage in more constructive conflict resolution tactics (Schlaerth, Enasari & Christian, 2013). Other research has shown that plant managers and union stewards with high needs for power and dominance are more likely to engage in conflict, whereas those with high needs for affiliation are more likely to cooperate (Bass & Denteman, 1963). The combination of personalities in a situation probably is more important than the personality of single individuals, however. For instance, assigning two domineering people to work on a task that requires them to cooperate may lead to conflict as they each try to control the situation. Conflict seems less likely if a domineering individual is paired with a submissive individual.

## The development of conflict

For whatever reasons a conflict begins, once started it can have a life of its own and consequently acts in a manner that is consistent with these perceptions. The result is that perceptions of the situation can become self-fulfilling as competitive, conflictive behavior evokes similar behavior from the other. Often conflict can take the form of a vicious circle in which each action and reaction raises the stakes and takes the conflicting people farther and farther from a desirable state of affairs (Masuch, 1985). In the worst situations, conflict can spiral out of control and lead to tragic consequences. The following scenario, for example, unfortunately is all too common. A decline in productivity leads management to issue threats and warnings that if employees do not work harder they will punish them. These threats lead to resentment on the part of workers and further declines in productivity, which, in turn, trigger more punitive actions on the part of management. Vicious circles "are self-sealing and build up like malignant tumors in the body" (Masuch, 1985, p. 26). Partly this is because of the cognitive biases that accompany such conflicts. Each person tends to attribute the other's actions to personal traits (e.g., an evil personality or selfish intentions). Even more damaging is the tendency to accept the situation and view fighting as a normal way of life that does not need to change. Another factor contributing to vicious circles is the reduction in communication between individuals involved in a conflict. By not communicating, irrational beliefs continue unabated and become even more distorted.

## Managing conflict

It is important to recognize that too much harmony in an organization is as harmful as too little. Conflict and competition are sources of energy and creativity and can keep individual persons or units from becoming too powerful. While it is unrealistic to do away with them entirely, management should channel them in the direction of benefitting the organization. Miles (1980) distinguished among four general strategies for managing conflict and competition.

Structural or contextual approaches. In cases in which poor job design or a lack of clarity in defining job responsibilities are the sources of the conflict, the obvious approach to conflict resolution is to remedy these problems. For example, we know that conflict becomes more likely when one person of higher status is dependent on the work of someone lower in status. It is possible to decouple such people. If employees who pack a product into boxes must wait for another unit to provide the boxes, conflict between the units is resolvable by providing a buffer stock of boxes so that the packing unit is not as dependent on the other unit. Another approach is to use an integrator or coordinator whose special job is to see that the supply of boxes is maintained. Increasingly, organizations are also making use of mediations to resolve conflicts that in the past would have been settled through lawsuits. A mediator helps the conflicting parties negotiate a mutually acceptable solution.

Structural means of resolving a conflict involve organizational entities or procedures that channel conflict in constructive directions. Where a union represents workers, the



structural form for resolving disputes is the grievance procedure. It can serve as an avenue of resolving conflicts that arise between workers and supervisors as well as a means of clarifying ambiguous or incomplete aspects of the contract. The first step is to take the grievance to the shop steward or the employee representing the union. The steward may tell the employee to abandon the grievance or attempt to directly resolve the issue with the supervisor. If attempts to resolve the issue fail, the next step is to pass the grievance over to a grievance committee. This committee usually consists of employees elected by the union membership who meet with management representatives to present the case of the grievant. If a resolution is not possible, then the final step is to take the case for outside arbitration. A neutral person such as a judge, lawyer, or professional arbitrator hears both sides of the grievance and renders a binding decision.

Cross-functional project teams are another structural approach that organizations can use to avoid the conflict that is so often observed among different functional units (e.g., engineering vs. production vs. research and development). Simply forming such a team is not enough to avoid the conflicts that occur as the result of turf battles among the departments that team members represent. The leadership of the team must then instill in the team members a common mission and convince them that they have more to gain from cooperation than from competition.

Reframing the issues. Employees who are at odds with each other frequently have difficulty resolving their conflict because they state the issues in diffuse and all-encompassing terms. Labor unions may claim that management is out to exploit them; management claims that the union is trying to financially ruin the company. As long as the issues stay at this level, it is impossible to move toward resolution. In issue control the issues are subdivided into smaller, more manageable components and these specific issues are then tackled one at a time. For instance, in a labor-management negotiation, disputes are often subdivided into relevant issues (benefits, pay, and work rules) and each of these negotiated separately.

Modifying the relationship. Conflict and competition are also managed by acting directly on the relationship between the conflicting parties. One can distinguish among the various relational approaches according to whether they are aimed at changing the behavior of those involved in the conflict or attempt to achieve some fundamental change in attitudes as well. An example of a behavioral change approach is to separate the conflicting parties. Thus, if two employees constantly bicker, a manager in the situation might tell them to stay away from each other. To change attitudes she may need to use a superordinate goal strategy in which she presents the conflicting parties with an objective that is highly important to both parties but requires close cooperation to achieve (Sherif, Harvey, White, Hood, & Sherif, 1961). An example of a superordinate goal is overcoming the threat of foreign competition. The attempts to achieve this goal has led to cooperation between labor unions and management.

Changing individuals. In some cases, changing one or more of the conflicting parties is necessary to resolve a conflict. Moving a recalcitrant individual out of a unit or even dismissing an employee are possible solutions. Racial conflict in an organization that

results from stereotypes and the inability to communicate may call for efforts to eliminate stereotypes and improve communication skills. Another example is training in which employees are sensitized to discriminatory behavior in their interactions with persons of different gender or race.

Which conflict management approach is best? Both task and relationship conflict harm employee performance and need to be managed (De Dreu & Weingart, 2003). The particular approach depends on the diagnosis of the situation, including the specific causes of the conflict. If a diagnosis points to structural arrangements as the primary cause, then structural approach is possibly sufficient to reduce conflict and encourage constructive competition. If attitudes or personalities are at the root of the conflict, then deeper interventions are needed. More often resolving conflicts is not a matter of the one best approach but how to effectively combine a variety of techniques. A manager might want to begin by separating the conflicting parties, and after a cooling-off period, follow up with attempts to improve the relationships and attitudes of those involved. Neilson (1972) further suggests that managers should consider the costs associated with a tactic, their ability to successfully implement the tactic, and the compatibility of the tactic with their personal values. Whatever approach is used, however, people who must work together in an organization must ultimately perceive themselves to share common goals that require cooperation to attain.

Points to ponder:

1. The research shows that rewarding people for their cooperation is more successful in achieving good results than reward people competitively or individually. Why do you think this is true and can you think of possible exceptions? Under what circumstances would a competitive reward system benefit rather than harm the performance of the group or organization?
2. The evidence that rewarding people who must work together with competitive or individual rewards is not as effective as rewarding them for cooperation. Go back to the chapter on motivation and consider the VIE model. Are the findings on the effects of cooperative vs. competitive reward systems inconsistent with VIE theory? How could you integrate the competitive vs. cooperative reward research with VIE theory?
3. Competition is not the same as conflict. What are the differences between the two and under what conditions can competition evolve into conflict?
4. Have you ever been involved in or observed a vicious cycle of conflict? What happened and why? Did the people involved resolve their conflict and if so, how?
5. The essential components of “vicious” cycles of conflict are that they are self-perpetuating and closed to outside influence. Do you think a self-perpetuating and closed cycle could emerge in which two or more parties cooperate? In other words, could a “virtuous” cycle of cooperation emerge and if so, what are the circumstances in which it could occur?
6. Consider each of the potential antecedents to conflict and discuss how an organization could make sure that the factor does not lead to conflict.
7. For each of the means of resolving conflict, consider when you could most appropriately use it to resolve a conflict.

8. What is your style of conflict resolution? Do you think it is effective or would you benefit from changing it in some way?

### Organizational Citizenship Behavior

All organizations require some activities of employees that are focused on accomplishing tasks and assisting others in their tasks. Observations of what they actually do reveal that they often go beyond what is required to further organizational interests in ways that they are not mandated by job descriptions, rules, and procedures. Indeed, organizations are only effective to the extent that employees go beyond what they must do and are willing to voluntarily behave in ways that benefit the organization, other employees, and client. By contrast, rigid, uncreative, and inefficient organizations have a disproportionate number of employees who stick strictly to what their job descriptions define as their duties. They do no less than they need to do, but seldom do more, and as a consequence, their organizations fail to perform as effectively as organizations where employees more frequently engage in these non-required activities.

The term used to refer to social behavior that reflects this going beyond the call of duty is organizational citizenship behavior (OCB). Dennis Organ (1988b) defined it as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization” (p. 4). If a behavior is not formally required but it is clear that employees will be punished when it is absent, or rewarded if it is consistently demonstrated, this behavior is probably not an OCB. The defining characteristic is that the employee can voluntarily choose to engage in the activity or not without any clear expectation of rewards or punishments. Another key characteristic of OCBs is that the beneficial impact on the organization is shown in the aggregate and not necessarily in any one single OCB. Since the original formalization of the OCB construct, related constructs have proliferated in the scholarly literature including prosocial organizational behavior (Brief & Motowidlo, 1986), organizational spontaneity (George & Brief, 1992), extrarole behavior (Van Dyne, Cummings, & McLean Parks, 1995), and contextual performance (Borman & Motowidlo, 1997). Although each of these new conceptualizations built on the original notion of OCB and highlighted some important elements of the construct, this chapter will stick to the original term.

Originally, OCB was conceptualized in terms of five dimensions. Altruism is face-to-face, one-on-one, helping of others, including the boss, coworkers, associates, clients, and others in the organization to accomplish organizational objectives even though this is not required in the employee’s role. Conscientiousness is consistently obeying and going beyond the minimal requirements of the organization (e.g., “I take less days off than most individuals or less than allowed”). Civic virtue is becoming active in responsible internal political activities that are important to employees and the organization (e.g., attending meetings and keeping up to date, defending the organization against outside criticisms or threats). Courtesy includes actions that are aimed at preventing problems such as conflict with coworkers (e.g., being polite and considerate toward others, getting a cup of coffee for a coworker as well as one’s self, giving advance notice of something that might affect

them, making extra copies of an agenda). Sportsmanship refers to employees' willingness to "go with the punches" and not complain when things do not go just as they would like. At the core of citizenship behavior is altruism or interpersonal helping. One can distinguish between task-focused helping which is assistance of others on performance of tasks in their work roles and personal helping in which the behaviors are focused on enhancing coworker self-esteem providing emotional support, or assisting in the personal problems of coworkers (Dudley & Cortina, 2008). Another distinction is between helping behavior that is proactive and an expression of personal values and helping behavior that is reactive and is a response to positive events such as another employee's help (Spitzmuller & Van Dyne, 2013). Interpersonal helping benefits the organization and the work group indirectly by increasing the motivation and cooperation of coworkers (Hüffmeier, Wessolowski, Van Randenborgh, Bothin, Schmid-Loertzer & Hertel, 2014).

Subsequent research suggests that a global underlying dimension of OCB is a more appropriate approach to measurement than attempting to delineate independent dimensions (LePine, Erez, & Johnson, 2002). The research also suggests that it is useful to distinguish between OCBs that are aimed at coworkers (e.g., "Helped a less capable co-worker lift a heavy box or other object") and OCBs that are aimed at the organization (e.g., "Brought work home to prepare for next day") (Williams & Anderson, 1991).

The overall organizational climate can influence the frequency and motivation of helping (Mossholder, Richardson, & Settoon, 2011). A compliance oriented organizational system emphasizes individual employee performance and the use of close monitoring and individual rewards to ensure compliance to rules and procedures. In a collaborative system, there is more emphasis on team efforts and the use of group as well as individual rewards. In a commitment system, there are group based rewards and an attempt to integrate the technical and social aspects of the work. Relative to climates dominated by collaboration and commitment, helping is less frequent and when it does occur is more likely motivated by self-interest and the instrumentality of the helping to performing tasks. By comparison, in collaborative and commitment organizations, helping is more frequent. In collaborative organizations the motivation is the norm for reciprocity in which employees reciprocate favors done for them and interpersonal trust is crucial. In commitment organizations the motivation is prosocial values and bonds with coworkers and is motivated by attempts to meet the needs of others in the organization.

The meta-analyses of the research on OCB has shown that the report of more OCBs

- ...is positively related to satisfaction (Lepine, Erez & Johnson, 2002; Organ & Ryan, 1995; Carpenter, Berry & Houston, 2014).

- ...is positively related to perceived fairness (Carpenter, Berry & Houston, 2014; Cohen-Charash & Spector, 2001; Lepine, Erez & Johnson, 2002; Organ & Ryan, 1995)

- ...is positively related to organizational commitment (Carpenter, Berry & Houston, 2014; Lepine, Erez & Johnson, 2002; Organ & Ryan, 1995)

- ...is positively related to the consideration of workers by leaders (Organ & Ryan, 1995).

...is positively related to the conscientiousness (personality) of employees (Carpenter, Berry & Houston, 2014; Chiaburu, Oh, Berry, Li & Gardner, 2011; Lepine, Erez & Johnson, 2002; Organ & Ryan, 1995)

...is positively related to general mental ability of employees (Gonzalez-Mulé, Mount, & Oh, 2014).

...is positively related to self-reported agreeableness of employees (Chiaburu, Oh, Berry, Li & Gardner, 2011).

...is positively related to self-reported extraversion of employees (Chiaburu, Oh, Berry, Li & Gardner, 2011)

...is positively related to self-reported openness of employees (Chiaburu, Oh, Berry, Li & Gardner, 2011)

...is positively related to self-reported emotional stability of employees (Chiaburu, Oh, Berry, Li & Gardner, 2011)

...is positively related to the positive affectivity of employees (Organ & Ryan, 1995)

...is unrelated to the gender and tenure of employees (Organ & Ryan, 1995)

...is unrelated to the age and education level of employees (Carpenter, Berry & Houston, 2014)

...is positively related to employee reports of positive organization support of employees (Carpenter, Berry & Houston, 2014; Chiaburu, Lorinkova & van Dyne, 2013)

...is positively related to employee reports of positive coworker support (Chiaburu, Lorinkova & van Dyne, 2013)

...is positively related to employee reports of leader support (Chiaburu, Lorinkova & van Dyne, 2013)

...is positively related to employee reports of autonomy (Carpenter, Berry & Houston, 2014)

...is positively related to performance of the individual (Carpenter, Berry & Houston, 2014; Podsakoff, Whiting, Podsakoff & Blume, 2009), group (Nielsen, Hrivnak & Shaw, 2009), and organizational unit (Podsakoff, Whiting, Podsakoff & Blume, 2009).

...is negatively related to reports of conflict (Carpenter, Berry & Houston, 2014; this was found for reports of OCB by others)

...is negatively related to reports of constraints in the work place (Carpenter, Berry & Houston, 2014; for other reported OCB)

...is positively related to reward allocations made to employees (Podsakoff, Whiting, Podsakoff & Blume, 2009)

...is negatively related to turnover intentions and turnover at both the individual and unit level (Podsakoff, Whiting, Podsakoff & Blume, 2009)

...is positively related to customer satisfaction (Podsakoff, Whiting, Podsakoff & Blume, 2009)

There are several issues that remain with regard to OCBs. First, whether OCBs are measured with self-reports by the employees themselves or other people such as the supervisor seems likely to influence the results. The ideal approach is to use both self-reports and other-reports in measuring OCBs, but that is often not practical. It is comforting to know that self-reports do not yield radically different findings, and may even be preferred for some purposes (Carpenter, Berry & Houston, 2014). Yet, the issue is still unresolved and more research is needed before concluding that self-reports of

OCBs are sufficient. A second issue concerns measurement artifacts present in OCB measures. The presence of overlapping items and the use of agreement scales are two potential problems with research examining the correlations between responses to OCB measures and responses to self-reports on other variables such as satisfaction or commitment (Dalal, 2005; Spector & Che, 2014). In one study, a comparison was made between the correlations obtained with OCB scales with these artifacts and OCB scales that were corrected for these artifacts (Spector & Che, 2014). The correlations between OCB and variables such as performance, fairness, conscientiousness, quality of relationship with supervisor (LMX), and organizational commitment were substantially larger for OCB scales that were corrected for artifacts. The researchers conclude that there is a “need to reexamine our conclusions about OCB’s connection to other variables.... Clearly the relationship of OCB with other variables is far more complex than the rather simple idea that it is negatively associated with most things bad and positively associated with most things good” (p. 179). A third issue that gets at the heart of the entire notion of OCBs is whether OCBs are really discretionary. One worldwide survey found that when employees are asked whether various OCBs are part of the job or not, they tend to report that they are part of their jobs (Jiao, Richards & Hackett, 2013). This same survey found large differences among various national cultures on the extent to which OCBs were seen as part of their job duties. Respondents from Confucian Asian nations such as China were much more likely to view OCB as part of their job than respondents from Anglo, non-Confucian nations such as the United States, Canada, and Great Britain.

### Counter-Productive Work Behavior (CWB)

Counterproductive work behavior (CWB) are social behaviors that are intended to harm the organization either through acts that directly disrupt the performance of tasks or by hurting other employees in the organization (Miles, Borman, Spector & Fox, 2002). In one of the earlier studies of CWB, 87 behaviors were identified. A factor analysis reduced these behaviors to eleven categories.

1. Theft and related behavior (theft of cash or property; giving away of goods or services; misuse of employee discount).
2. Destruction of property (deface, damage, or destroy property; sabotage production);
3. Misuse of information (reveal confidential information; falsify records).
4. Misuse of time and resources (waste time, alter time card, conduct personal business during work time).
5. Unsafe behavior (failure to follow safety procedures; failure to learn safety procedures).
6. Poor attendance (unexcused absence or tardiness; misuse sick leave).
7. Poor quality work (intentionally slow or sloppy work).
8. Alcohol use (alcohol use on the job; coming to work under the influence of alcohol).
9. Drug use (possess, use, or sell drugs at work).
10. Inappropriate verbal actions (argue with customers; verbally harass co-workers).
11. Inappropriate physical actions (physically attack coworkers; physical sexual advances toward coworkers).

Another study found that these eleven could be described in terms of two independent dimensions. One dimension reflected CWBs that were personal or organizational in nature and the other dimension reflected CWBs that were targeted against tasks (Sackett, 2002). The location of each of the CWBs in this two-dimensional space is presented in figure 7.9.

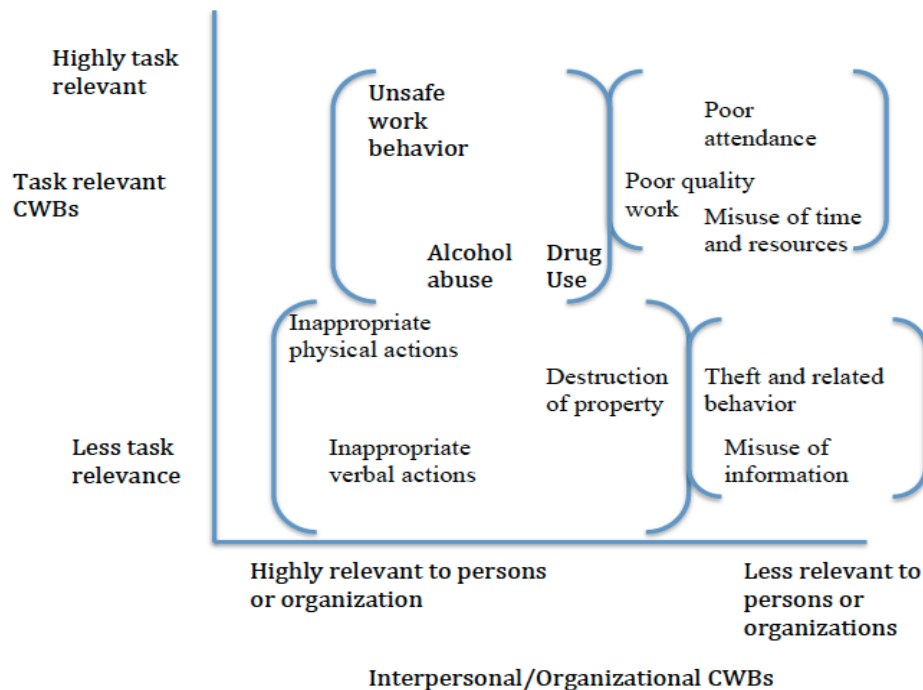


Figure 7.9: Taxonomy of Counterproductive Work Behavior

Meta-analyses have shown that CWBs and OCBs are related to many of the same variables, although in opposite directions. To the extent that employees engage in CWBs

...they are less likely to perceive the organization and their work situation as fair and just (Cohen-Charash & Spector, 2001; Dalal, 2005)

...they report less commitment to the organization (Dalal, 2005)

...they are more likely to be narcissistic as measured by self-report personality inventories (Grijalva & Newman, 2015; O'Boyle & Allen, 2014)

...they are more likely to show lower emotional stability as measured on self-report personality inventories (Berry, Carpenter & Barratt, 2012)

...they report lower agreeableness as measured on self-report personality inventories (Berry, Carpenter & Barratt, 2012)

...they report less openness as measured on self-report personality inventories (Berry, Carpenter & Barratt, 2012)

...they report less conscientiousness as measured on self-report personality inventories (Berry, Carpenter & Barratt, 2012; Dalal, 2005; Salgado, 2002)

...they report more negative affect as measured on self-report personality inventories (Berry, Carpenter & Barratt, 2012; Dalal, 2005)

...they report less positive affect as measured on self-report personality inventories (Dalal, 2005)  
...they perceive the organization as less fair (Berry, Carpenter & Barratt, 2012)  
...they report more constraints in the organizational context on performing their jobs (Berry, Carpenter & Barratt, 2012)  
...they report more conflicts of interests among individuals in the organizational context (Berry, Carpenter & Barratt, 2012)  
...they report less job satisfaction (Berry, Carpenter & Barratt, 2012; Dalal, 2005).

OCBs and CWBs are opposite in their impact on the organization, so it is not surprising that employees who engage in more OCBs also engage in fewer CWBs. However, the correlation between CWBs and OCBs is typically only moderate in magnitude with corrected correlations only in the .30s. Even smaller correlations are found when CWB and OCB scales are edited to make sure antithetical items are excluded (e.g., I attend work daily in an OCB scale and I often miss work in a CWB scale) and frequency ratings are used rather than agreement response scales (Dalal, 2005; Spector, Bauer & Fox, 2010). The relatively low correlations found between OCB and CWB suggest that the same employee may indeed engage in both OCBs and CWBs. One possible explanation is that employees engage in a moral licensing process in which those who engage in OCBs feel as though they have a license to also engage in CWBs (Klotz & Bolino, 2013). Of course there are other explanations for why the same employees may engage in both CWBs and OCBs including attempts to resolve guilt over CWBs, mood and emotion swings and their regulation, and the restoration of justice in what is seen as an unjust situation. This is an issue that requires more research.

Many of the same issues associated with OCBs apply as well to the research on CWBs. The correlations found between CWB and other self-report measures are probably inflated to some extent by the use of agreement scales in CWB scales and the overlap in items in CWB scales and the self-report scales used to measure other variables. Also, much of the research relies on self-reports of CWBs. However, a meta-analysis reached the conclusion that CWB reports by others are positively related to CWB self-reports and these correlations are larger when respondents are guaranteed anonymity (Berry, Carpenter & Barratt, 2012). Also, the patterns of correlations found between self- and other reports are very similar even though the size of the correlations is slightly higher for other-reports than self-reports. Finally, CWB other-reports make only a small contribution to the prediction of other variables once self-reports are entered into the prediction analysis leading the authors to conclude “organizational researchers should feel justified in using either self- or other-ratings of CWB” (p. 625). Despite these conclusions, the ideal approach is to use both self- and other- reports of CWBs. As is the case with OCBs, this is an area of research that needs additional work before definitive conclusions are reached about the use of self-reports vs. other reports.

A criticism of not only CWB research but also the research on integrity tests and other methods of predicting wrong doing by employees is the low base-rate of the criterion. Researchers in one survey of the CWB research measured the frequency with which CWBs were reported (1 = never to 7 = daily (Greco, O’Boyle & Walter, 2015). The mean



frequency was only 1.85 for CWBs intended to harm other persons and 1.91 for CWBs intended to harm the organization. Most surveys of CWBs show frequencies that range from never to once a year. The issue is far from resolved, but the findings of at least one study suggest that a high nonresponse rates in self, supervisor, and peer reports of CWBs (i.e., only 30 – 42 percent typically respond) may distort the frequency with which CWBs are reported (Greco, O’Boyle & Walter, 2015).

Points to ponder:

1. What is an OCB and why is it crucial that employees are willing to engage in OCBs in an organization?
2. Some would argue that if OCBs are important to an organization, the organization should make them formal requirements and reward those who perform them. What are the pros and cons of this position?
3. How would you encourage people to engage in helping of coworkers? Are there limits to how much helping should occur in a work situation?
4. What are the major dimensions along which Counterproductive Work Behaviors can be distinguished?
5. How are OCBs and CWBs related? Are OCBs simply the opposite of CWBs (and vice versa), or is the relation between the two more complex?
6. Describe some of the issues that remain in conducting research on OCBs and CWBs.

### Social Power and Influence Processes

The readers can probably remember participating in meetings in which there was a struggle over who would lead the group. They may have observed that one person had such clout that all others went along even though they privately disagreed with his or her views. They may have even found themselves going against their private beliefs and conforming to the majority view to avoid criticisms. These instances involve two additional basic social processes: influence and power.

### The French and Raven model of social power

The amount of influence that is achieved depends on social power, which we define as the potential to influence others. Social power resides in a social relationship in which one person in that relationship has the ability and means to impose one’s will on the other (Sturm & Antonakis, 2015). French and Raven (1959) proposed that there are five bases of power, each originating from a different type of relationship between the agent of power and the recipient of the influence attempts.

Reward power. The amount of reward power that person A has over person B is a function of how much A can reward B and B’s perception that A controls these rewards. For instance, a supervisor might have a large amount of reward power if the organization made available monetary incentives that could the supervisor has discretion in administering.

Coercive power. The amount of coercive power that employee possess is a function of the amount of punishment that A can administer and the perceptions of B that compliance will lead to an avoidance of these punishments. Coercive power also occurs as a consequence of believing that A can withhold rewards from B. An example of coercive power is the ability of one person to get others to go along with work practices through threats of isolation and rejection.

Legitimate power. Individuals have this type of power to the extent that others perceive them as having the lawful authority to influence them. Who is granted this authority depends on the values of the organization. Thus, older people might have little problem telling others what to do, whereas younger people might have difficulty doing this because they are not seen as having the right to issue directives. Legitimate power also can derive from the pyramidal structure of the typical hierarchical organization. Thus, a vice president has the right to direct department heads; department heads have the right to direct first-line supervisors; first-line supervisors have the

Referent power. This is the ability to influence that stems from the person's attraction to and liking for the agent of influence. An example is a person who concedes to the demands of peers because he or she wants their acceptance and approval. The motivational source of referent power is the ability of the leader to affect the followers' feelings of personal acceptance, approval, and self-esteem.

Expert power. This is the ability to influence others as the result of being perceived as having special knowledge and expertise. An employee in an organization might have access to information that others do not have because of that individual's special training, native intelligence, or location in the organization. The range of influence is restricted to topics on which the person is considered knowledgeable. Agreeing with a person because he or she is an expert on engineering problems, for instance, does not mean that you will agree with the person on a marketing or human resource management problem.

Two important aspects of the French and Raven model are worthy of emphasis. The bases of power discussed by French and Raven (1959) are the consequence of how others perceive that individual, regardless of whether these perceptions have any basis in reality. For example, a person may have no actual expertise but if others see him as an expert, he still can wield expert power. Perceived expertise is a consequence of a combination of forces that includes the past attempts of the person to influence, the characteristics of the person, and the situational context. A second point is that these bases of power are interrelated. Thus, individuals may acquire referent power as the result of rewarding others. Similarly, individuals who possess expertise may acquire legitimate power as the result of others seeing them as having the right to issue directives. A third point is that some of these power bases are the result of what the organization can do, whereas others are rooted much more in the personal characteristics of the person who exerts the power. Organizational bases of power include reward, coercive, and legitimate power. Personal bases of power include expert and referent power. Of all five, the one that the organization can least likely change is referent power. The organization can increase

expert power through training, can increase coercive and reward power through making available rewards and punishments, and can increase legitimate power through job descriptions that define the manager's authority. However, referent power is based on the likability of the person, something that the organization can do little about.

### Social influence tactics

Whereas power is defined by the potential to influence others, an influence tactics is what an individual actually does to influence others (Kipnis, Schmidt, and Wilkinson, 1980; Yukl & Tracey, 1992). Yukl and his colleagues have identified eleven types of influence tactics (Yukl & Tracey, 1992; Yukl, Seifert & Chavez, 2008; see table 7.1). The most frequently used tactics are consultation, rational persuasion, inspirational appeals, and ingratiation, and the least frequently used are exchange tactics (Yukl & Tracey, 1992). The decision to use a tactic is a function of both the personality traits of the person using the tactic and the level in the organization of the person who is the target of the influence. Rational persuasion is more frequently used to influence superiors (upward influence) than peers (lateral influence) and subordinates (downward). Respondents reported that inspirational appeals and ingratiation were more frequently used to influence subordinates than either peers or superiors.

Type of influence tactic	Definition	Example
Pressure tactics	To get compliance the person demands, threatens, or intimidates	If you don't do as I say, I will make life miserable for you.
Legitimizing	The persons attempting to influence others make clear that the position they occupy give them the authority and right to make the request and that the request is consistent with organizational policies, rules, practices and traditions.	I am the boss so you need to do as I tell you.
Exchange tactics	The persons offer an explicit deal in which if the others do as they are requested, they will be given rewards or some other tangible benefits will; also, the persons attempting to influence may remind the others of past favors that they need to return.	If you do as I say, I will make sure you get a pay raise.  I helped you in the past, now you need to help me.

Consultation	The persons attempting to influence ask for input from the others on the issue that is the target of the influence.	I have an idea for how we should do this task and would like your opinion and ideas about it.
Collaboration	Those attempting to influence offer assistance and resources to those that are asked to carry out the request.	We need to take this action and I'll help you to get it done.
Apprising	Those attempting to influence describe how complying with the request will benefit the other personally.	Doing what I ask is going to help you gain new skills, meet new people, and will really help your career a lot.
Inspirational appeal	Those attempting to influence evoke values, ideals, and emotions to gain compliance to the request.	Doing this is a sign of your integrity, your belief in your fellow workers, and your commitment to excellence.

Coalition tactics	The persons attempting to influence ally with others and ask them to help in persuading others to comply with the request, or uses the support of others as part of the argument for compliance.	We need to join together in an effort to get Fred to do as I have requested.  Your coworkers support me and my request that you do as I have asked.
Ingratiation	The persons flatter or in some other way attempt to get the others to personally like them as a way of getting them to comply with the request.	You are one of the best employees that I have worked with. You are competent, friendly, and just a great guy. (followed by a request to do something).
Self-promotion	The persons attempting the influence convey an impression of competence as a way of gaining compliance from others.	You should know that I am really quite good at this and know what I am talking about.
Rational persuasion	The persons use logic and data in arguing why the others should comply with a request. Often point to the positive outcomes that are likely to follow from compliance.	The past research shows that what I am asking you to do is the most efficient and productive means of accomplishing our goals.

Table 7.1: Alternative Influence Tactics

The personality of the person using a tactic is also a factor to consider. Although the strength of the associations are usually very small, meta-analyses of the correlations between personality and the choice of a tactic have shown statistically significant effects for self-monitoring, Machiavellianism, locus of control, intrinsic and extrinsic motivation, and desire to identify with the group (Barbuto & Moss, 2006).

1. Self-monitoring is the degree to which one observes how others' perceptions and then changes to adapt to the audience (Snyder, 1974). High self-monitors are more adaptable and more willing to engage in impression management whereas those low on self-monitoring are more consistent across situations and less willing to shift to adapt to those observing their behavior. Higher self-monitors appear more prone to using ingratiation tactics.

2. Extrinsic motivation is the extent to which one is driven by the need to be rewarded by others with concrete outcomes such as money or through praise and an enhanced reputation. Intrinsic motivation is the extent to which one is driven by enjoyment of the task or personal feelings of success and self-esteem. The meta-analysis revealed that high extrinsic motivation were associated with the use of ingratiation and exchange tactics. High intrinsic motivation was associated with the use of ingratiation and rational persuasion.

3. Locus of control is the belief that one's fate is under internal control or shaped by uncontrollable external forces. Those who believe in an external locus of control were less likely to use rational persuasion than those with an internal locus of control.

4. Machiavellianism is the belief that one should do anything it takes to influence others regardless of the ethics of the tactics. Higher Machiavellianism was associated with more use of ingratiation and exchange.

5. Social identity was the extent to which one identifies with one's social group and this was negatively related to the use of coalition formation and upward appeals.

What are the consequences of the tactics for the effectiveness of the person attempting to influence others? A meta-analysis of the research examining the relation of influence tactics and work outcomes indicated that higher performing employees were more likely to use ingratiation and rationality tactics and less likely to use assertiveness tactics such as pressure (Higgins, Judge & Ferris, 2003). Promotions and salary increases also were positively related to ingratiation and rationality. Self-promotion by a subordinate was negatively related to supervisory performance assessments. Exchange tactics, and upward appeals were unrelated to work outcomes. The pattern of results suggests that "kissing up to the boss" is likely to yield results but that bragging about one's self may well backfire. Much probably depends on the skill with which an employee uses an influence tactic. It seems likely that ingratiation fails when attempted by a social unskilled subordinate. Likewise, self-promotion succeeds if it is skillfully implemented. Consider the recent example of Donald J. Trump in his campaign for the U. S. presidency!

## Responses to influence attempts

In addition to considering the alternative sources of social power and the tactics of influence, it is important consider the alternative responses to influence attempts. Three possible responses to group attempts to influence are conformity, anti-conformity, and independence (Stricker, Messick & Jackson, 1970; Willis, 1965). Conformity occurs when group members move in the direction of what peers want or expect. Nonconformity occurs when the group member does not respond to influence attempts by moving in the direction of the group majority. Nonconformity can come in the form of anticonformity where members take a position or act in a manner that goes in the opposite direction of group norms, and independence where members are relatively uninfluenced by the group and decide based on the information available to them. The reader will have encountered group members on occasion who go out of their way to act as contrarians and oppose whatever the group decides. The anti-conformist and the conformist are similar in that they both are highly influenced by the group. By contrast the independent member responds to influence attempts on the basis on what they personally consider to be the correct, moral, or appropriate alternative.

The status of the individual is an important factor determining the response to influence attempts. It is frequently observed that that the relation of status and conformity to a social norm follows an inverted U-shaped function (Phillips & Zuckerman, 2001). High status and low status persons exhibit the least conformity whereas those with moderate levels of status exhibit the most conformity. High status buys what Hollander (1958) called idiosyncrasy credits that an individual can use to deviate from social norms without fear of disapproval or punishment. On the other hand, low status persons feel free to deviate because they sense that no matter what they do, other persons in the situation will reject them. Those in the middle range aspire to rise in the eyes of others and fear the loss of status. Consequently, conformity is seen as instrumental to gaining status in the group.

Conformity, anticonformity, and independence reflect responses to influence attempts but do not provide much insight into the depth with which the person is influenced. Kelman (1958) distinguished among surface level influence in the form of compliance and deeper levels of influence in the form of identification and internalization. Mere compliance (or anti-compliance in the case of the anti-conformist) is a response in which the individual acts or in some way espouses a position publically that is unrelated to his or her private inclinations, beliefs, or feelings. Compliance can occur to obtain rewards and avoid punishments without any deep commitment to the actions or positions that are the targets of the influence attempts. Identification is a deeper form of conformity in which the individual adopts a position or acts in a certain way to show solidarity with peers or a leader. Conformity in this case reflects an attempt to be like the other person or persons. When these individuals are no longer in the picture, however, there is less pressure to conform and a lower probability of conformity. The deepest level of conformity is internalization. Here the individual responds to group pressures by personally adopting the actions, beliefs, and opinions that the group promotes. Internalization occurs when the group successfully socializes members into adopting group goals and values as their own

personal goals and values. Compliance occurs where group members do or say things to obtain rewards and avoid punishments but outside the group context the expectations of peers may cease to have much influence.

Points to ponder:

1. Power is the potential to influence another whereas an influence strategy or tactic is the actual attempt to influence. Could one have power without any attempt to influence? Likewise, could one successfully attempt to influence without power?
2. In what circumstances would the attempt to influence deplete one's power and in what circumstances would the attempt to influence increase one's power.
3. What does it mean to say "power corrupts" and "absolute power corrupts absolutely"? Could powerlessness also corrupt, and if so, how would this happen?
4. How would you describe your own power in terms of the French and Raven model? How would you describe how you typically go about trying to influence others in terms of Yukl et al model? Is your power consistent with your influence strategies and tactics? Why or why not?
5. The organization cannot as readily change one's referent power, but what do you think are some possible ways in which an organization could attempt to do this?

### Political Behavior

"It's just politics" is one of the most frequent comments when employees discuss events occurring in their organizations. More often than not organizational politics are seen as having negative consequences. This is implied in Mintzberg's (1983, p. 172) definition of politics as "individual or group behavior that is informal, ostensibly parochial, typical divisive, and above all in a technical sense, illegitimate – sanctioned neither by formal authority, accepted ideology, nor certified expertise (although it may exploit any one of these)." Despite the association with bad outcomes, it is possible to use organizational politics for positive ends as well as negative ends (Vrendenburgh & Maurer, 1984). Indeed, it is often the lack of effective politics rather than the presence of politics that leads to conflict in organizations and war in international affairs. The essential element of political behavior in the organization is that individuals who engage in this behavior are using power and influence to further the interests of their group or their personal self-interests. Political behavior has an element of secrecy in that actors engaging in this behavior seldom admit to doing so with those they are attempt to influence. There is also a skill dimension with some employees performing much better than others in their use of political tactics to further self and group interests.

### Political tactics

Listed below are some of the political tactics mentioned in the theory and research on organizational politics (Allen, Madison, Porter, Renwick, & Mayes, 1979; Vrendenburgh & Maurer, 1984):

Blaming or attacking others: In this tactic the person denies responsibility for a negative event and scapegoats others. Sometimes this tactic is used proactively in anticipation of a negative event.

Withholding or selectively providing information: Here individuals distort or withhold information or overwhelm others with information. Outright lying is often a part of the strategy.

Creating and maintaining a favorable image: Here the person conveys to others a self-image of likability or competence and takes credit for successes.

Developing a base of support: In this tactic, the individual attempts to gain buy-in to a course of action prior to a decision by getting people involved, sharing and clarifying the preferred option, and lobbying them to gain their commitment.

Ingratiation: In one study, higher level managers appeared to view this as a relatively positive tactic and described it as praising others and gaining rapport (Allen, et al, 1979). Lower level managers viewed it less favorably and labeled it as “apple polishing” and “buttering up”.

Power coalitions and associating with powerful others: This overlaps with developing a base of support but consist of a more blatant attempt to ally one’s self with powerful others or to gain credibility by associating with these individuals.

Reciprocity: This involves bargaining in which an individual is offered something of value in exchange for supporting the political actor. Higher level managers viewed a “tit for tat” deal as a more frequently used political tactic than did lower level managers.

Orchestration of events: This would occur when some problem is intentionally created as a way of attaching blame on another.

Reducing dependencies: Here the individual would make sure that others do not affect the performance of the individual by reducing the extent to which he or she is dependent upon the task activities or success of others. In a sense this would involve taking steps to move the situation from reciprocal or sequential interdependence to one of pooled interdependence.

Exploitation of others: An employee might enhance his or her own position by targeting others who are vulnerable and lack the power to retaliate.

This list perhaps captures some of the most salient examples of what is commonly seen as organizational political behavior but certainly does not exhaust the possibilities. In behaving politically employees could use all of the influence tactics in the Yukl and Tracey (1992) taxonomy, although some of the influence tactics seem more closely associated with politics (exchange, ingratiation, coalitions) than others (coercion, rational persuasion).



## Situational antecedents of political behavior

Observers of organizational political behavior have hypothesized that the use of political behavior is more likely given specific circumstances (Ferris & Judge, 1991; Ferris et al, 2002; Vrendenburgh & Maurer, 1984).

Centralization. Organizational politics seems more likely when there is a higher degree of centralization in which power and authority is concentrated in positions at the top of organizational hierarchy and much less power and authority is possessed by lower ranks. When centralization leads to feelings of powerlessness, employees resort to politics to regain a sense of control.

A lack of participation in decision making. Participation is measurable as a continuum with the least participation occurring when the supervisor makes the decision without any consultation with employees and the most participation occurring when the supervisor engages subordinates in a discussion of the alternatives and together they arrive at a mutually satisfaction decision. In between these extremes is consultation where the supervisor involves the employees but makes the final decision based on their input. When employees are not allowed to participate, they may engage in politics as a way of having input into the decision. On the other hand, a means of reducing political behavior is to allow employees to participate in decisions and to inform employees of the rationale for decisions made by management.

Development opportunities. Political behavior is more likely when employees feel that there are limited development opportunities. They may feel this way because of ambiguous standards for performance appraisals, unfair organizational procedures and allocation of resources, poor mentorship, an absence of training, lack of promotion opportunities, and task assignments that lack challenge.

Hierarchical level. Employees lower in the ranks of the organization are typically hypothesized to engage in politics to a greater extent than those higher in the organization. This seems more likely to the extent that the lower rank leads to feelings of a lack of control. In this situation, lower level participants may engage in politics as a way of gaining a sense of control over their fate.

Span of control. This refers to the number of subordinates reporting to a supervisor. A wide span of control refers to a large number and a narrow refers to a small number. It has been proposed that politics is more likely to occur with a larger or wider span of control. When there is a wide span employees resort to politics to gain the attention or favor of the supervisor. When there is a narrow span, employees experience less competition with peers and do not feel the need to engage in politics.

Quality of interaction with supervisor. When employees have a high quality relationship with their supervisors in that the supervisor trusts and confides in them and involves them in decisions, they are less likely to engage in political behavior than if the supervisor

maintains a distant personal relationship, closely monitors them, and does not involve them in decision making. In most organizations it is easy to discern those employees who are in the “in-group” with regard to their supervisors and those in the “out-group” (Graen 1976). Those exiled to the out-group seem more likely to engage in politics in the attempt to gain favor with or circumvent the supervisor.

Lack of cooperation. To the extent that the task, reward system, and other aspects of the organization discourage cooperation and encourage competition, employees seem more likely to engage in political behavior. In a cooperative situation, employees may see the success of others as instrumental to their own success. As a consequence, they are more prone to help their co-workers rather than compete against them. To the extent competition is encouraged, employees are more likely to engage in politics to gain their share of what they perceive as scarce resources.

Mistrust. A lack of trust can emerge in an organization for a variety of reasons, including secrecy, ambiguous standards, arbitrary and unfair decisions, poor quality relations, and task and reward systems that encourage competition. To the extent that there is mistrust, employees resort to political behavior to ensure that their employees do not take advantage of them.

A lack of justice. Closely related to the lack of objective standards is a lack of procedural justice. A high level of procedural justice follows from decisions that are perceived as objective, free of bias, correctable, and consistent in the application of rules and procedures. Distributive justice is the fair allocation of resources or outcomes as judged against prevalent norms. Although the most frequently applied norm in individualistic cultures is one of equity in which individuals are allocated outcomes based on their contributions or inputs, norms for equality or need also become salient in some situations. When employees feel that procedural and distributive justice is lacking, they are more likely to resort to political behavior to restore justice.

Scarce resources: When the financial, physical, and human resources needed to perform tasks are in short supply, individuals and groups within an organization are more likely to use politics as they compete for their fair (or unfair) share. As example is when the state legislature slashes funding for universities. One can see universities and the departments within these universities engaging in a variety of political tactics in their competition for the remaining funds.

Ambiguity in tasks and roles (lack of formalization): If employees are unclear as what is expected of them or if the tasks they perform are unstructured without clear procedures to use in achieving success, political behavior is more likely to emerge. Politics in these cases may represent a way of taking advantage of the situation as employees try to bend the rules in their favor. Politics also can serve as a means of making sense of the situation rather than serving purely selfish ends. When employees have a clear understanding of the standards that are used in evaluating their performance, they are less likely to engage in politics than when standards are ambiguous or missing. For instance, if there is a formalized, objective basis for evaluating performance in terms of the quantity or

measured quality of performance, the employee has a clear basis for claiming success or denying failure.

Disparity between authority and actual influence. One reason that politics is inevitable in organizations is that there is always a violation of the classical management rule that there should be a parity of authority and responsibility. There is never enough authority allocated to a formal position and as a result the individual engages in political tactics to influence others.

Environmental turbulence and change. In a stable environment where technology and markets remain fairly constant, there is less need for politics than a turbulent environment where there is uncertainty about the future. Political behavior is a means for individual to maneuver to gain an advantage and to perhaps buffer their resources in anticipation of future shortfalls. Political behavior is also a means of trying to reduce uncertainty and gain some understanding of how to cope with an unpredictable future.

Dependence on others. As in the case of interpersonal conflict, when employees must depend on others in the performance of their tasks, they are more likely to engage in politics to increase their influence over the other person or persons and reduce their dependence. Dependence either in reciprocal or sequential interdependence implies vulnerability. In these situations, persons may become political to regain some control over their situation.

Secrecy. Organizations differ in the extent to which information is shared, decisions are openly discussed, and the rationale for choices is made known. When managers go behind closed doors, gossip and rumor can proliferate and employees revert to political behavior. In these cases, politics may represent an attempt to acquire information as in the case of an employee who ingratiate to get the boss to share information about rumored layoffs. Politics also can represent a means to protect against the harm that one anticipates in a climate of secrecy.

Violation of expectations. When employees are hired or enter into a new role in the organization, they typically have expectations for how management will treat them, the nature of the tasks they will perform, their coworkers, the rewards they will receive, and other outcomes of their employment. To the extent that the outcomes fall short of their expectations, they are more likely to engage in politics. In part this is the consequence of feeling that success is the result of politics rather than the effort and competence of the employee. It also may reflect attempt to work around barriers to achieving outcomes that meet expectations.

### Perceptions of politics (POPS)

Almost all of the research on organizational political behavior has dealt with employee perceptions of politics rather than the actual political tactics that they use. Although more research is needed using objective measures of political behavior, the perception that an organization is political in nature is an important construct that can influence how

employees respond to the events that they observe in an organization. Politics are not necessarily a source of negative outcomes in an organization, but it is clear that employees perceive political behavior as negative in nature. When employees categorize an event as political, they perceive the event as contrary to what should occur in a rational, effective organization. And when they describe a fellow employee as political, they usually mean that the person is underhanded, manipulative, and mischievous. The questionnaire designed to measure perceptions of organizational politics (POPS) contains questions such as the “Squeaky wheel gets the grease around here,” “Interdepartmental connections help when calling in a favor,” and “Supervisor communicates to make himself look good”) (Kacmar & Ferris, 1991). Research with the POPS questionnaire has shown that perceptions that there are politics in the organization are associated with negative work-related attitudes, self-reported stress, poorer performance, and negative perceptions of the work context. Summarized below are some of the findings reported in recent meta-analyses.

Higher perceptions of organizational politics are associated with

- .....reports of less trust in the organization (Atinc, Darrat, Fuller & Parker, 2010; Bedi & Schat, 2013),
- .....lower job satisfaction (Bedi & Schat, 2013; Chang, Rosen, & Levy, 2009; Miller, Rutherford, & Koldinsky, 2008),
- .....lower job involvement (Bedi & Schat, 2013)
- ....lower organizational commitment (Bedi & Schat, 2013; Chang, Rosen, & Levy, 2009; Miller, Rutherford, & Koldinsky, 2008).
- ....employee reports of more psychological strain (Chang, Rosen & Levy, 2009).
- ....employee reports of more job stress (Bedi & Schat, 2013; Miller, Rutherford, & Koldinsky, 2008)
- ....employee reports of more burnout (Bedi & Schat, 2013)
- ....lower performance ratings (Bedi & Schat, 2013; Miller, Rutherford, & Koldinsky, 2008; Chang, Rosen, & Levy, 2009)
- ....less organizational citizenship behavior (Chang, Rosen, & Levy, 2009)
- ....more counterproductive work behavior (Bedi & Schat, 2013)
- ....higher self-reported intentions to turnover (Chang, Rosen, & Levy, 2009; Miller, Rutherford, & Koldinsky, 2008)
- ....less organization a support (Bedi & Schat, 2013),
- ....lower quality of relationships with supervisor, LMX (Atinc, Darrat, Fuller & Parker, 2010)
- ....lower self-reported procedural justice (Bedi & Schat, 2013; Atinc, Darrat, Fuller & Parker, 2010), lower distributive justice (Bedi & Schat, 2013), and lower interactional justice (Bedi & Schat, 2013),
- ....higher centralization (Atinc, Darrat, Fuller & Parker, 2010)
- ....higher participation (Atinc, Darrat, Fuller & Parker, 2010)
- ....lower organizational formalization (Atinc, Darrat, Fuller & Parker, 2010),
- ....lower self-reported opportunities for development (Atinc, Darrat, Fuller & Parker, 2010)
- ....self-reported violations of expectations (Atinc, Darrat, Fuller & Parker, 2010)

....less self-reported feedback on tasks (Atinc, Darrat, Fuller & Parker, 2010)  
....less self-reported skill variety (Atinc, Darrat, Fuller & Parker, 2010).

A mediator that seems common to many of these relations is a lack of control over the situation. It would seem that mistrust, injustice, ambiguity, and most of the other variables discussed here are most likely to provoke political behavior when the employee feels helpless. Politics is a way of dealing with a situation in which the deck seems stacked against the employee and there is no straightforward path for overcoming the barriers.

When considering these findings, the reader should keep in mind several caveats. Several caveats are worthy of mention. It is important to note that the abovementioned findings were based on perceptions of politics rather than political behavior per se. Also, most of the largest correlations between POPS and other variables used self-reported measures. For instance, although negative correlations are found between supervisor rated performance and employee perceptions of organizational politics, these correlations are quite low (.10 to .20) compared to correlations with self-reports of job satisfaction and other work-related attitudes (.40s - .60s). Another caveat is that these are correlations and the direction of the causality is uncertain. It is just as likely that lower performance causes the perceptions of politics as it is that perceptions of politics causes lower performance.

#### Personality traits associated with perceptions of politics

Not only are some work situations more likely to be associated with perceptions of politics but as shown in a meta-analysis of the research using the POPS measure, some types of employees seem more prone to these perceptions (Atinc et al, 2010). Age, sex, length of time in the job, education level, and minority status were only weakly related to perceptions of politics. Self-monitoring was a personality dimension explored in the meta-analysis. This is a personality dimension that reflects the extent to which individuals focus attention on the self and respond to how others perceive them. High self-monitors focus outward and change their behavior to fit the expectations of others whereas a low self-monitor is focused inward and stays true to their personal dispositions. Self-monitoring was unrelated to perceptions of politics, but the correlations for three other personality dispositions were statistically significant (Atinc, Darrat, Fuller & Parker, 2010): affectivity, locus of control, and Machiavellianism.

The tendency to show positive and negative affect is best described in terms of two, independent dimensions rather than as one dimension. Consequently, people are high on both positive and negative affect and low on both as well as high on one and low on the other. Employees who perceived politics were prone to experience negative affect (corrected  $r = .41$ ) and less likely to experience positive affect (corrected  $r = -.31$ ). A possible explanation is that people with positive affect are more likely to frame situations in more positive terms whereas those with negative affect are more likely to frame them in negative terms. Individuals who are prone to seeing the situation negatively are likely to resort to political behavior to a greater extent, whereas individuals who are prone to

more hopeful expectations are more likely to go a nonpolitical route in dealing with their tasks, the organization, and other people.

Locus of control is the extent to which individuals feel or perceive that they are under the control of outside forces as opposed to having control of their own fates (Rotter, 1966). Individuals who are high on external locus of control feel that their success is subject to forces that they cannot predict or change. Those high on internal locus of control feel that they are responsible for their successes and failures and can with sufficient ability and effort master whatever problems they might encounter. To the extent that individuals are high on external locus of control (and low on internal control), they are more likely to perceive that there are politics in their organization (corrected  $r = .31$ ). Again, it appears that a feeling of helplessness may serve as a crucial component of perceived politics and the willingness to engage in political behavior.

The third personality variable associated with perceptions of politics was Machiavellianism. This is named for Niccolo Machiavelli who was a 16th century historian, politician, and diplomat who in his book *The Prince* set forth advice to rulers on how they should rule. Machiavelli's advice has been perceived as supporting lying, cheating, and other immoral behavior. His evil reputation is probably not deserved, but Machiavellianism has entered the language as a term describing political behavior that is deceitful and often brutal. Two political scientists developed the Machiavelli scale to measure the extent to which people adhere to a Machiavellian philosophy of politics (Christie & Geis, 1970). To take an on-line version go to <http://personality-testing.info/tests/MACH-IV.php>

This is a self-report personality questionnaire containing items taken straight from *The Prince*. Items from a revision of the original scale (Dahling, Whitaker, & Levy, 2009) gives a sense of what Machiavellianism represents:

I would cheat if there a low chance of getting caught.  
I am willing to sabotage the efforts of other people if they threaten my own goals.  
I enjoy having control over other people.  
Status is a good sign of success in life.  
People are only motivated by personal gains.  
If I show any weakness at work, other people will take advantage of it.

A person high on Machiavellianism distrusts others, desires status and control over others, and shows a lack of concern for moral standards in the tactics used to achieve goals. Moreover, there is a cynical assumption that others are not to be trusted and will only do what benefits them. Not surprisingly, a high level of Machiavellianism is positively associated with perceptions of politics (corrected  $r = -.40$ ).

### Culture as a moderator of POPS

The extent to which perceptions of organizational politics is related to work related attitudes, performance, and stress is moderated by the culture of those surveyed (Bedi &

Schat, 2013). Stronger negative correlations with satisfaction and performance and stronger positive correlations with stress-related outcomes are found in North American countries than in other countries. One possible explanation is that the stronger negative reactions to POPS reflected the values dominant in individualistic countries. In the non-American countries, the participants were mostly from India, China and Israel, all of which are considered collectivistic cultures compared to North American countries that are individualistic. In individualistic cultures the belief is more prevalent than in collectivistic cultures that organizations should award status and other outcomes on the basis of individual achievement and competence (Torelli, Leslie, Stoner & Puente, 2014). Given the emphasis on individual competence, respondents from North American countries are perhaps more likely to see the use of politics as illegitimate and inappropriate.

### Political skill and will

Whether the exercise of politics leads to negative or positive consequences probably depends on the skill and will of the politician. Political skill is defined as the “savvy to know which influence tactics to employ in particular situations, as well as the ability to exhibit a situationally appropriate behavioral style to ensure their influence effectiveness” (Kolodinsky, Treadway & Ferris, 2007, p. 1750). Ferris et al (2005) developed a self-report questionnaire to measure political skill. The measure taps four dimensions of political skill: networking ability (e.g., “I spend a lot of time and effort at work networking with others”), apparent sincerity (“It is important that people believe that am sincere in what I say and do”), social astuteness (I always seem to instinctively know the right thing to say or do to influence others”), and interpersonal influence (“It is easy for me to develop good rapport with most people”).

In considering the effects of political behavior on outcomes, it is not only important to consider skill but also will. In other words, is the individual willing and motivated to employ political tactics to achieve goals? Kapoutsis et al (2015) developed a self-report questionnaire to measure political will. It consists of items such as “Doing good for others sometimes means acting politically,” “When I am right I am willing to act politically,” and “Engaging in politics is an attractive means to achieve my political objectives.”

A meta-analysis of research using the Ferris et al (2005) political skill measure found that self-reported political skill is positively related to several positive outcomes. More political skill was related to higher self-efficacy, job satisfaction, organizational commitment, work productivity, organizational citizenship behavior (OCB), career success, and personal reputation, and lower physiological strain (Munyon, Summers, Thompson & Ferris, 2015). Self-reported political skill was found in this meta-analysis to predict task performance even after controlling for the big five personality traits and general mental ability. Surprisingly, political skill was unrelated to psychological strain and perceptions of organizational politics. Further analyses suggested that self-reported political skill affected performance in part as a consequence of enhancing the personal reputation and self-efficacy of the politician. Despite the positive effects there are a lot of gaps in the research on political skill and will (Kimura, 2015), not the least of which is

whether objective measures of political skill predict performance and other outcomes. That is a crucial question that so far remains unanswered as researchers continue to rely on self-report measures of organizational politics.

Points to ponder:

1. What are organizational politics? How would you distinguish political behavior from power/influence? Do we need to distinguish the two or can we simply subsume political behavior under power/influence and treat it as a type of influence?
2. Are organizational politics always negative in their impact on the organization? Should management always discourage political behavior? What are the pros and cons?
3. Can a manager be effective if he or she is unwilling to engage in politics? Why? Why not?
4. What constitutes the skillful use of organizational politics? Should an organization provide employees training in political skills?
5. What are the issues in conducting research on organizational politics, influence, and power?

Conclusions

Social process was defined in this chapter as the interactions occurring among employees as they perform their tasks and attempt to fulfill their social and emotional needs. As defined in this chapter, social process is dynamic and changing.

Communication processes are perhaps at the core of all social processes. The communication model presented earlier in the chapter makes clear that communication consists of a process beginning with the sender's encoding and transmission of the message and ending with the recipient's decoding of the message and a response. The reader should think back to some instance when a communication attempt failed. As is usually the case, the breakdown was probably blamed on the sender or recipient's lack of motivation or ability. The model suggests that a better approach than blaming is to consider each step in this process as a potential source of the miscommunication. Perhaps the communication failed at the initial encoding of the message when the sender failed to convey all of the message, or feelings unintentionally leaked into the message. Perhaps the communication failed in transmission because of noise or other people who were competing for the receiver's attention. It is also possible that the recipients failed to receive the message because of their emotional state or expectations. Decoding could have been a cause if the recipients heard the words correctly but gave them a different interpretation. Breakdown could also reflect a failure of the recipient to respond as intended to the message. Here the ability, knowledge, or motivation of the recipients is the source of the problem rather than encoding, transmission, reception, or decoding of the message. Perhaps the most important question to ask is whether the recipient and sender received feedback with regard to the transmission. Providing feedback may require asking recipients to repeat what was transmitted and to state what they plan to do in response to the messages transmitted. A final potential source of the breakdown is a mismatch between the medium used and the message. Is the richness of the medium used



appropriate to the message? If a lean medium is used to communicate an emotional or ambiguous message or if a rich medium is used to communicate a simple, fairly straightforward message, problems may occur. So, there are many opportunities for communication processes to go wrong in an organization. A careful diagnosis of the communication process and the potential breakdowns that can occur at each step is a better approach to avoiding and correcting a problem than blaming the sender or recipient.

A second category of social process consists of cooperation, competition, and conflict. When people are dependent on one another for achieving their goals, the inevitable competition and conflict generated can either help or hinder achieving the organization's goals. Conflict and competition can emerge both from personalities of the individuals involved and the organizational situation in which they find themselves. A variety of methods are potentially useful in resolving conflict and ensuring constructive competition. Employee diagnosis of the situation and self-appraisals of strengths, weaknesses, and values dictates which of the specific methods is used.

Organizational citizenship behavior (OCB) consists of prosocial behaviors that are not required in the employee's job description but occur as voluntary attempts to benefit other people and the organization. Helping others is a particularly important category of OCBs. The research is consistent in showing that organizations and employees benefit when employees engage in a high level of OCBs. One caveat is that much of the research relies on self-report questionnaires. Recent research suggests that the relation of OCBs to other outcomes is weaker when some of the measurement artifacts associated with the use of self-report questionnaires are removed. Counterproductive work behavior (CWB) would appear at first glance to be at the opposite end of a continuum anchored at the high end by OCBs. Research suggests that they are independent and it is possible that employees engage in the highest level of OCBs also engage in CWBs.

Social exchange consists of the transactions that occur among employees in an organization as they trade concrete and more abstract resources. These transactions can be explicit negotiations but more often they are implicit in nature. Whether a relationship between two employees or between employees and their organization survives or dies depends on how the parties to the relationship evaluate the rewards they receive and the costs incurred in the exchange of resources. The most satisfying, stable exchange occurs when the costs are minimal and the outcomes are positive and surpass the level of rewards received in past relationships (CL) and the rewards that are possible in alternative relationships (the CL<sub>alt</sub>). The least stable and most unsatisfying exchange would occur when the outcome is falls below the CL and the CL<sub>alt</sub>. Norms and rules govern the social exchanges. The most cohesive groups form norms of generalized reciprocity in which member contributions to one or more fellow members are reciprocated by the group as the result of a strong group identity. In the past, a strong psychological contract existed in which employees expected that their loyalty to the organization would be reciprocated by the organization. Protean careers appear to be replacing the psychological contract as organizational loyalty to the employee declines.

Social power, the attempts to influence others, and the responses to these influences were also examined. Power is a potential to influence and can stem from resources that the organization makes available to employees and the personal characteristics of the employees. Influence is the actual attempt to change the behavior and attitudes of others. A variety of influence tactics are available to employees including rational persuasion, assertion or forcing, and coalition formation. The tactics that are used depend on the characteristics of the person and the target of the influence tactic. The response to an influence attempt can occur as conformity, anticonformity, or independence at one level and as compliance, identification, and internalization at a deeper level.

Closely related to social influence tactics are the political tactics in which employee engage to further their self-interests. Organizational politics do not necessarily harm an organization, but it is clear from the research that numerous negative outcomes are associated with the perception of organizational politics. Whether politics lead to positive or negative consequences appears to depend on the skill with which political tactics are implemented.

At any one point in time, one can observe all of these social processes at work in an organization. Over time, regularities emerge in interactions that add stability to worklife. These regularities consist of social structures and are the focus of the next chapter.

## CHAPTER 8: SOCIAL STRUCTURES IN ORGANIZATIONS



## Introduction

Imagine if an employee in an organization had no idea of what the other people at work life were likely to do, think, or feel from moment to moment and these others were equally clueless about what to expect of the employee. Everyday existence would quickly become intolerable as the employee and the coworkers struggled through the simplest interactions. Social structure provides the predictability and order that people need before they can effectively work together as a group or organization. The previous chapter dealt with a variety of social processes including communication, conflict, competition, and cooperation, exchange, power and influence, political behavior, organizational citizenship behavior, and counter-productive behavior. This chapter is concerned with the social structures that emerge from these processes in the form of recurring, stable interactions among people in an organization.

### A model of imposed and emergent social structure

Figure 8.1 provides a general framework for the discussion of emergent social structures in this chapter. The contextual, personal, and interpersonal antecedents influence social processes and over time social structures emerge from these interactions. The link between social structure and process is reciprocal in that social structure emerges from social process and in turn structure constrains social processes. Social structures are relatively stable but are dynamic and can change as a consequence of outcomes. A norm may pressure employees to achieve a high level of productivity, but if management then decides to up the ante and require even higher performance to receive bonuses and other rewards, this could lead to a modification in social processes that ultimately leads to a lowering of the norm for productivity. A social role may lead to a differentiation in activities in which some people act as the leaders of a group, but if the group fails to achieve its objectives, these roles change and new leaders emerge.

### Formal vs. informal social structures

Social structures in an organization exist as formal arrangements imposed on employees and informal regularities that emerge from employee interactions. The formal organizational design that is imposed by management includes a statement of objectives, work roles, and rules, along with a distribution of authority and responsibility. The informal patterns that emerge from the interactions of people in the organization inevitably deviate from the formal design to some extent. People conform to the expectations for how they are to think, feel, and behave and in so doing they depart to some extent from formal rules. They perform activities on a regular basis that are not part of the initial task assignments. Some members come to possess more influence, status, and resources than others, and this emergent structure deviates from the official chain of command. As described in table 8.1, each formal structure has an informal counterpart. The formal and informal social structures seldom overlap totally and may even conflict, but both are needed in an effective organization.

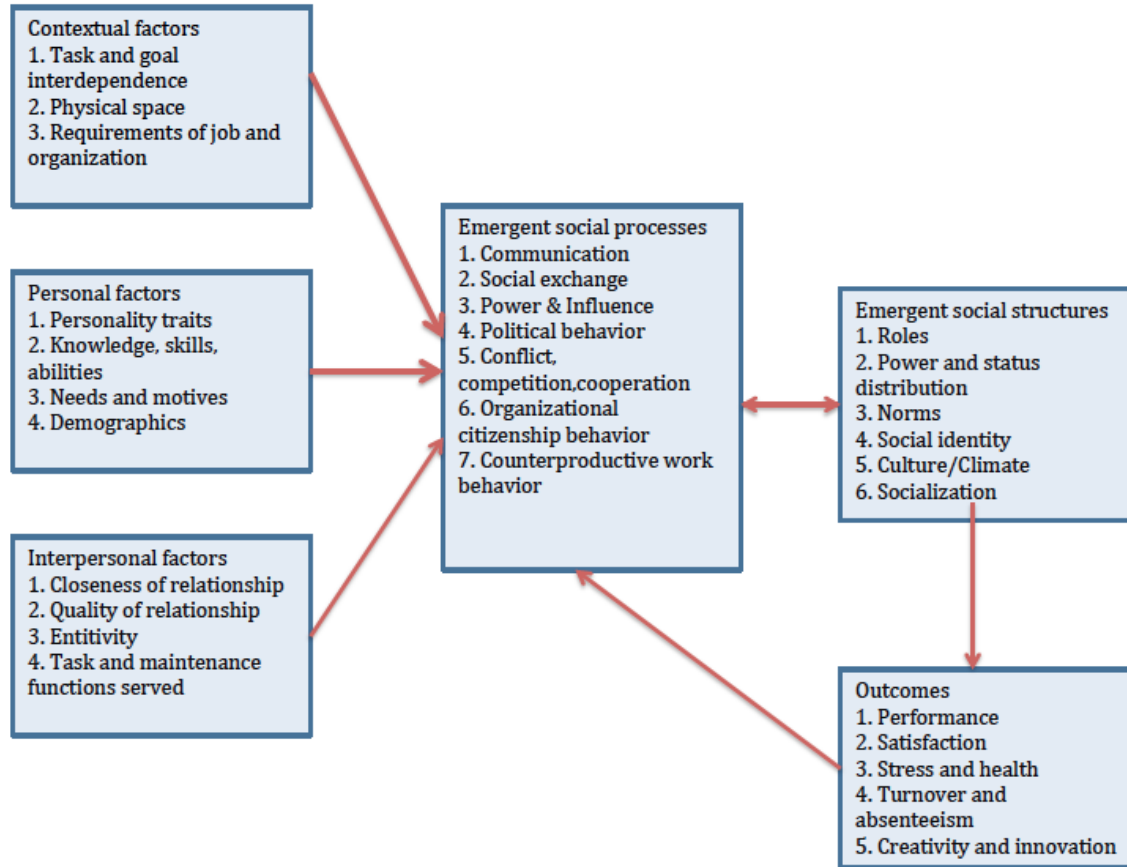


Figure 8.1: Antecedents and Consequences of Social Process and Emergent Social Structures

Formal organizational design		Emergent social structures
Horizontal differentiation of functions and tasks	↔	Social roles
Vertical distribution of power and status	↔	Informal assignment of power and status
Rules and procedures	↔	Social norms
Organizational identity as defined in the formal communications	↔	Shared social identity
Core values as stated in formal communications	↔	Organizational culture and climate as perceived by participants
Formal lines of communication and command	↔	Social networks
Employee training	↔	Socialization

Table 8.1: Formal and Emergent Social Structures

## Division of Labor

The readers are asked to recall the last time they were part of a newly formed group that was assigned some task to perform. Probably one of the first actions of the group was to divide up the labor among group members. Similarly, the most immediate issue confronting the management of an organization is differentiation, or the dividing up the activities in the organization. Organizations in which management gives no attention to differentiation are terribly inefficient. Employees needlessly replicate each other's efforts, engage in conflicts over preferred tasks, and neglect the tasks that no one wants to do. Confusion and conflicts emerge over who is in charge.

### Formal horizontal and vertical differentiation of labor

To reduce uncertainty and increase efficiency a formal structure is needed in the form of a division of labor in which people are hired into formal positions with specific responsibilities. In the formal organization, the organizational structure is defined by formal relationships among offices (also called positions) each of which is assigned specialized tasks to perform. The office that is assigned shapes what each occupant says, does, and thinks.

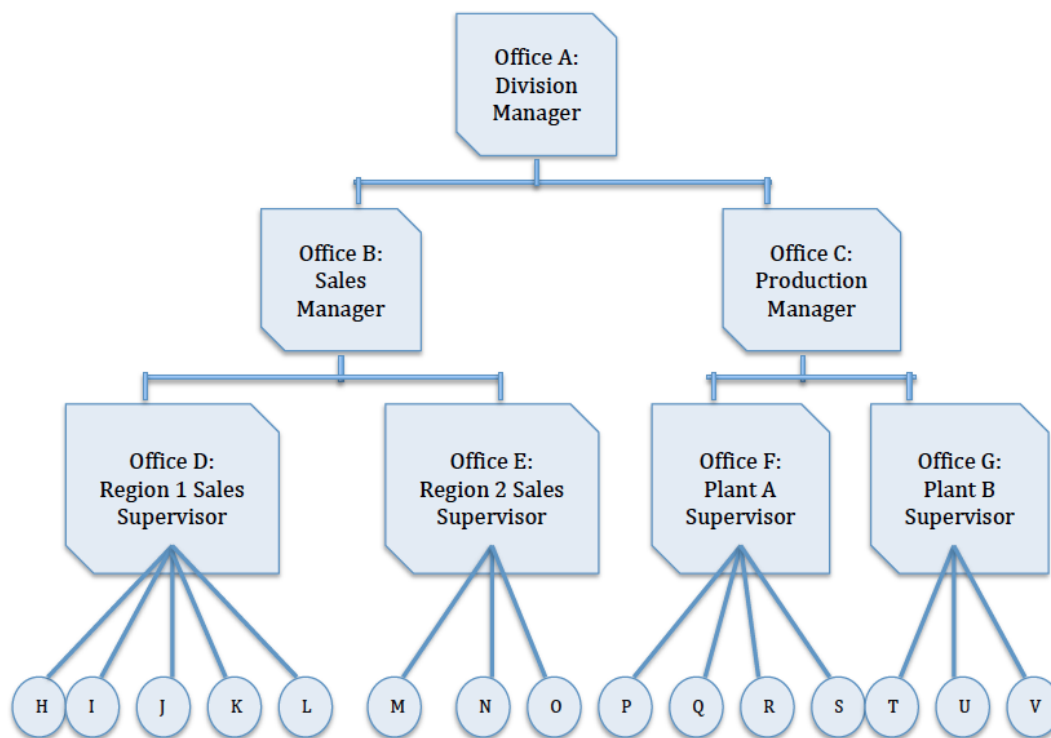


Figure 8.2: A Typical Organizational Structure as Defined in the Formal Organizational Chart

Figure 8.2 is a formal organizational chart that identifies the offices assigned and the relationships among these offices. It describes the division of labor among peers performing at the same level of authority and among the levels of management. Horizontal differentiation refers to the allocation of tasks to employees operating at the same hierarchical level in the organization and involves organizing the various activities into departments and other units and the assignment of specialized duties to employees. Vertical differentiation refers to dividing up the organization into levels of authority such as in the figure. The Division Manager is at the top, and then the Sales Manager and Production Manager at the second level. The sales supervisors and plant supervisors at the third level and are responsible for rank and file employees at the fourth level. A flat organization is one that has relatively few levels of management whereas a tall organization such as the one in figure 8.2 has multiple levels of management.

A basic distinction in any formal organizational chart is between those who manage and those who carry out the dictates of managers. The work of those managing is divided along hierarchical lines with the greatest amount of power and largest number of employees supervised increasing with the level of the employee. Management assigns tasks to workers and then monitors and rewards those reporting to them to ensure compliance with work procedures. In both horizontal and vertical differentiation, positions are created and specific duties are assigned to the individuals occupying these positions. When people in an organization understand what is expected of them and others, chaos is avoided and stability achieved.

### Social roles

Almost every organization has a formal organizational chart and a file of job descriptions, but the formal horizontal and vertical differentiation of activities and authority are insufficient in ensuring an efficient and productive coordination of employee activities. As people perform the assigned duties dictated in the formal structure they inevitably depart from the blueprint. One issue is that the formal job descriptions and specifications are never sufficient to encompass all the various task activities associated with a position. Also, formal structures usually focus on the task and seldom include many of the socioemotional processes that can affect how people perform their duties. These were discussed in the last chapter and include organizational citizenship behavior, counter-productive work behavior, informal communications, the attitudes, emotions, the exercise of power, influence, and politics, and conflict and coordination. An informal structure that serves as the counterpart to formal differentiation is the social role. The informal counterpart of the formal division of labor in an organization is the social role. A social role is defined as a pattern of expectations for how people in a position should act, think, and feel and the enactment of these expectations.

Katz and Kahn (1978) role sending model. In the model set forth in figure 8.3, social roles emerge as social structures in an organization as the result of role-sending and role-taking. The model begins with the formal structure defining the specialized duties of each person in the organization. Each employee occupies an office and is engaged in a network of relationships with other people inside and outside the organization. Some of

these relationships are formally defined in the organizational chart but others are informal and emerge from interactions between the person occupying the position and others inside and outside the organization.

Katz and Kahn (1978, p. 189) compare the network of role relations and the emergence of social roles to a fishnet. Imagine the organization spread out like a vast fish net, with each knot in this net representing an office and each string a functional relationship between offices. If one picks up the net by seizing any one office, the other offices that are connected to this officer are immediately seen. The knots that are attached make up the role set and consist of those who participate in defining the role of the occupant of the focal office. Supervisors and coworkers are the most obvious members of the role set. Other persons are not as obvious, but just as important, such as the spouse who expects the employee to spend more time at home or the members of the bowling team who expect her to spend Wednesday nights in practice with the team. In role-taking a role occupant responds to the expectations of role senders by conforming to these expectations.

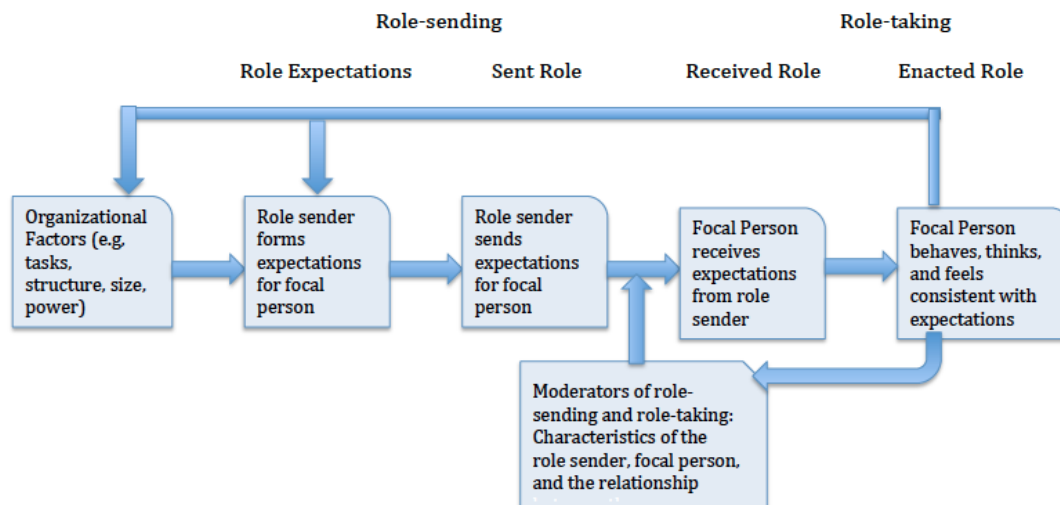


Figure 8.3: Katz and Kahn's Model of Role Sending and Role Taking

Emergent social roles. Role theory predicts that a network of roles emerges in which each social role is defined by the expectations sent by other persons inside and outside the organization. Figure 8.4 shows a possible set of role relationships that could emerge from the formal structure depicted in figure 8.2. In the formal structure (see figure 8.2), employee B consults as a staff person to A, who has authority over C and D. In turn C and D have employees reporting to them. In the informal structure depicted in figure 8.4, expectations communicated to those occupying the offices about how they should act, appear, and behave. The pattern of behavior, attitudes, and thought defining the role of the division manager is shaped by interactions with the sales manager and region 2 sales supervisor. For instance, B, C, and D constitute the role set for A. They communicate their expectations to A. As the result of these communicated expectations a role emerges for A in which the expected activities that inevitably differ to some extent from the activities set forth in the organization's formal definition of A's office. In any organization occupants of an office tend to deviate from the strict pattern of relationships



dictated in the formal organizational chart and here we see such a deviation. Perhaps the division manager came up through the ranks and has past associations with these two individuals. The division manager possibly was part of the sales organization prior to the promotion to division manager and as a consequence his or her role is shaped by expectations sent from the occupants of offices in the sales part of the organization. The roles of region 2 sales manager and the two plant managers are defined by relationships with the division manager and the plant manager. The double arrows denote a reciprocal relationship in which the roles are defined by a close and mutual relationship, whereas the single arrow lines denote a directive relationship in which one office acts as the role sender and shapes the role of the occupant at the other end. Roles E – G are defined by such reciprocal relationships whereas Role D is shaped primarily by expectations sent from role C. At the level of the offices reporting to the sales and production supervisors, the roles are shaped in part (as one would expect) by the expectations of the immediate supervisors. But expectations are sent by other offices as well and in some cases the role that emerges is primarily shaped by coworkers or supervisors and managers other than those in direct reporting relationship.

In Katz and Kahn's role-sending and taking model (see figure 8.3), roles emerge from communication and influence processes. People adopt a particular role through repeated episodes in which members of the role set communicate what they expect and then act to bring the focal person in line with these expectations. A problem with the Katz and Kahn approach is that they view the sending and taking of roles as a one-way process. In reality, a role emerges as the result of a two-way process. Employees seldom give in entirely to demands of others but often engage in subtle negotiations with the members of the role set in defining what appropriate role behavior (Graen, 1976) is. Role occupants also engage in a more active process of role making, especially in situations where the expectations are not clear or there is conflict in expectations. Here the role occupant creates his or her own pattern of behavior, perhaps even going against the expectations of some role senders. For example, a secretary is engaging in role taking if she performs the tasks stated in her job description that her manager expects her to perform (e.g. answering the phone, taking dictation, writing short memoranda) but expands her role to include acting as an adviser to her boss, technical assistant to other secretaries, and webmaster for the office. In these instances, the secretary proactively shapes the social role rather than simply conforming to others' expectations. Organizations that successfully innovate and adapt to change have employees who not only take on roles but also make roles.

#### Points to ponder

1. In what ways are social roles similar to a norm and in what ways do roles differ from roles?
2. Distinguish among role sending, role taking, and role making and the various processes involved.
3. The roles defined formally by an organization in the organizational chart and in job descriptions usually deviate to some extent from the roles that emerge from the actual work that people do in an organization. Why do the formal and informal roles of people

differ? What purposes are served by informal roles? Under what circumstances do you think that informal roles are consistent with and overlap with the formal roles?

4. Think of an organization to which you belong. Identify the various roles occupied by participants in the organization. How do these roles differ from the formal duties assigned to each individual?

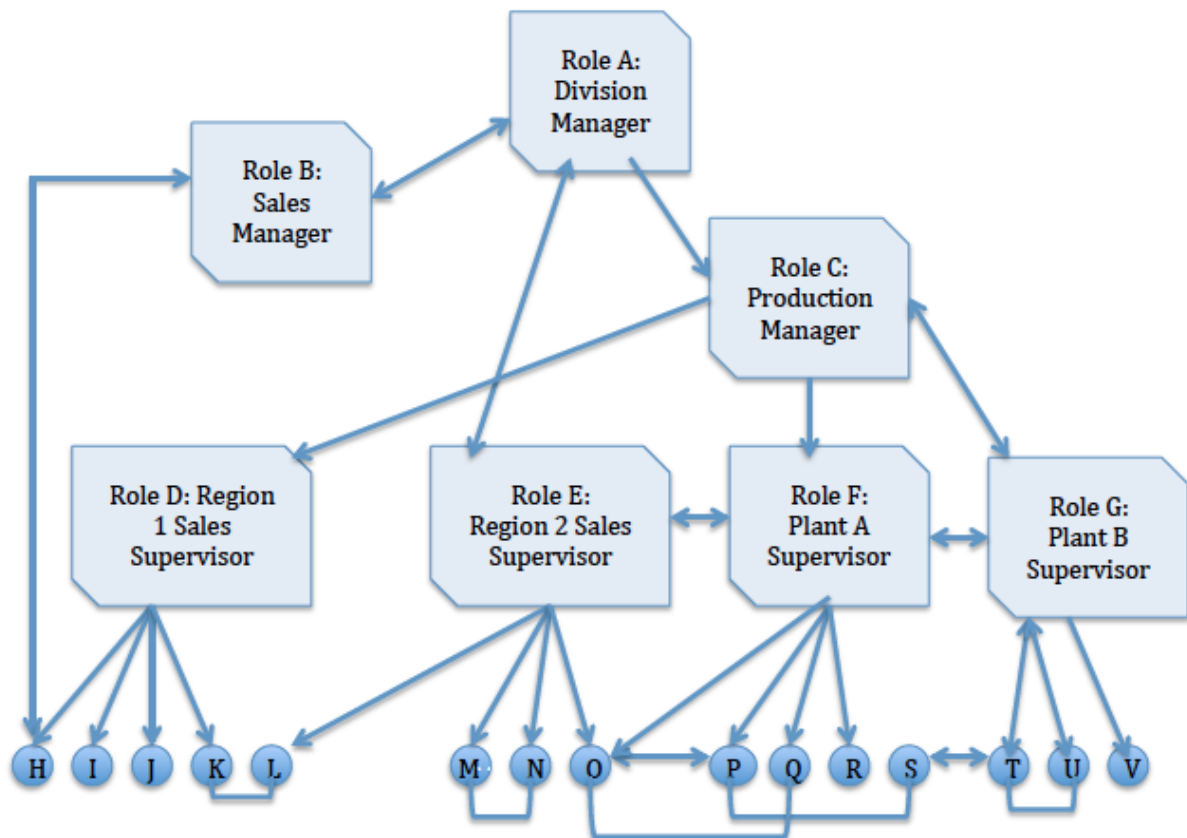


Figure 8.4: Organizational Structure from the Perspective of Role Theory

#### Distribution of Power and Status

The readers are again asked to recall a time that they were part of a newly formed group assigned a project to complete. The group members have divided the labor but now they have to coordinate and integrate their activities on these tasks and produce an outcome. Similarly, the management of organizations must coordinate and integrate the various activities performed by role occupants. To do this, positions are assigned power and status that enable them to direct the activities of others. Although the two go hand-in-hand, power and status differ. They are not only defined in the formal organizational design, but also emerge and exist as informal structures.

Formal power consists of resources at the disposal of the person in the hierarchy including the rewards and punishments that the person in the position can dole out to

subordinates and the legitimate right to dictate what others will do. Status is the respect associated with a position. Status symbols are the physical signs that communicate the extent to which various positions and the people in those positions are respected (Pratt & Rafaeli, 2001). The categories of status symbols that are among the most frequently used in organizations are physical space, organizational dress, forms of personal address, and salary and other benefits. People higher in the hierarchy usually have larger offices with windows, carpets, and doors along with a visible name tag that signals the level of the position. They often dress differently, with higher officials wearing formal suits. The communications with higher status persons in an organization also differ to the extent that they are addressed with sir, madam, Mr., a title (e.g., Mr. Vice President), or some other sign of deference. Not surprisingly, higher status employees also tend to receive more benefits such as higher salaries, parking spaces, and special dining rooms. In addition to these physical signs of status, people behave differently when interacting with higher status persons. People unconsciously use eye contact, vocal intonation, posture, facial expressions, and other verbal and nonverbal behaviors as signs of deference to the higher status person (Hall, Coats & LeBeau, 2005).

### Alternative power distributions

There are three prominent alternatives available in deciding how to distribute power and status. First, status and power can be divided equally so that all employees possess similar amounts of power and status. Second, the decision of how to distribute the power and status can be delegated to employees. Lastly, most of the power and status can be assigned to a few employees at the top of the organizational hierarchy. The third alternative is the traditional pyramidal structure and is by far the most common approach. The traditional pyramid concentrates both status and power in the hands of relatively few employees and uses a variety of signs and symbols to communicate that employees should defer to this elite group. Magee & Galinsky (2008) observe that.... “As groups and organizations grow, and their work becomes more complex, they tend to increase the formalization of their hierarchies. The signs of hierarchy formalization include job titles, reporting structures, and organization charts. The organization chart, for example, is simply a visual representation of the hierarchically differentiated structure of roles; it typically depicts a relatively small top management team, at least one layer of middle management, and a large number of lower-level employees responsible either for day-to-day operations or for the support of management.....There is also a presumption that, if effective human resource procedures are in place, individuals of higher rank possess a greater combination of skills, ability, and motivation to accomplish the work of the organization than do lower-ranking individuals, giving the formal hierarchy a high degree of legitimacy to its members (p. 354).”

The most status and power is given to the person at the top of the corporate ladder such as the Chief Executive Officer. The higher the position in the hierarchy the more people that the person in that position can tell others what to do and the more people are obligated to obey these directives. Thus, the Chief Executive Officer has the power to tell everyone in the organization what to do. Of course one person at the top cannot directly supervise everyone in the typical organization, so there is a distribution in which the amount of

power and status assigned at each successive level is less than the higher level, with the least assigned to the rank and file employees at the bottom of the hierarchy.

### The universality of the pyramid

Although the classical management and scientific management theorists believed that the traditional pyramid was the ideal organizational structure, the competition, complexity, and change so prevalent in modern life have led to alternative organizational structures. Organizational designs such as the matrix structure (see the first chapter) and structures in which decision making authority is delegated to teams of workers are often described as replacing the old fashioned hierarchical structures. Despite the experimentation with new organizational designs, the traditional hierarchy is pervasive and exists at some level even in organizations that have adopted more innovative structures.



*The traditional pyramid remains the most common distribution of power and influence.*

The traditional hierarchical structure shows up in groups and organizations across all cultures and in many different situations. Research in the laboratory with small groups has shown that groups made up of participants having equal prestige and power at the beginning of the group's existence over time evolve hierarchies in which members defer to a few participants. Those who differ in status outside these laboratory groups tend to bring these status differences into the group where they are maintained even when they have little relevance to the tasks (Berger, 1980). Evidence of the universality of hierarchies of power and status comes from research showing their occurrence in not only the corporate world but also in children, apes, chickens, and other human and nonhuman organisms (Kteily, Ho & Sidanius, 2012; Mazur, 2005). Sidanius and Prato (1999) Social Dominance Theory (SDT) proposes that "...all human societies tend to be structured as systems of group based social hierarchies...." (Sidanius & Prato, 1999)." There is a dominant group or groups at the top and subordinate groups at the bottom. The dominant

group possesses a disproportionate amount of the resources, power, status, and privilege. Those at the bottom possess a disproportionate amount of negative value. Accompanying the vertical hierarchy is a “legitimizing myth” consisting of “attitudes, values, beliefs, stereotypes, and ideologies that provide moral and intellectual justification for the social practices that distribute social value within the social system.” (Sidanius & Prato, 1999, p. 45). Moreover, SDT proposes that the traditional pyramid is a source of many evils: “Most forms of group conflict and oppression (e.g., racism, ethnocentrism, sexism, nationalism, classism, regionalism) can be regarded as different manifestations of the same basic human predisposition to form group based social hierarchies” (Sidanius & Prato, 1999, p. 38).

Why is the traditional pyramid so common?

People are socialized to prefer a hierarchical distribution of power and status during childhood, and even when individuals espouse a preference for egalitarian structures, the preference for a hierarchical structure is automatically and unconsciously activated in a variety of situations (Van Berkel et al, 2015). There are reasons that the traditional pyramid is so common. A review of the research suggests that the traditional hierarchy is rooted in a fundamental need of humans for status (Anderson, Hildreth, & Howland, 2015). A system in which people are coordinated by the bosses they report to and the bosses are in turn coordinated by the bosses of the bosses fulfills needs for control, provides order, reduces uncertainty, and enhances self-efficacy (Friesen, Kay, Eibach & Galinsky, 2014). When the group is under threat and these needs are frustrated, the preference for a hierarchical structure is even more pronounced (Friesen, Kay, Eibach & Galinsky, 2014; Morrison, Fast & Ybarra, 2009).

The preference for a hierarchical structure is reinforced as a consequence of experiences in groups. The readers probably can recall times when they were part of a group that seemed leaderless and without any coherent direction. Their negative experience is supported in the findings of previous research that has shown how an equal distribution of power in groups or organizations can create problems. In the absence of a central authority figure, conflict resolution becomes more difficult, especially when the overall power of the group is relatively high (Greer & van Kleef, 2010; Greer, Caruso, & Jehn, 2011). Moreover, the lack of a central decision maker can create a cognitive overload for members of the group or organization; the presence of a central decision maker can reduce the cognitive load of those lower in the hierarchy, freeing them to concentrate on the tasks at hand (Van Berkel, Crandall, Eidelman, & Blanchar, 2015).

The deeply rooted preference for a hierarchical structure can explain the universality of its use in organizational design, but this is not to say that a hierarchical structure is universally effective. As discussed in the first chapter, the traditional pyramid runs into problems in the face of global competition, increasing technological complexity, and the need for flexibility and innovation. In these situations, those at the top are overloaded with information and lack the knowledge, skills, and abilities that would allow them to make all the decisions on their own. Power can corrupt those at the top, leading to unethical and illegal decisions and resistance from employees, shareholders, the public,

and other stakeholders (c.f., Miceli, Near & Dworkin, 2008). A failure of centralized power discussed in the chapter on motivation is the demotivating effects it can have on employees. A traditional pyramid runs the risk of alienating those employees who desire autonomy and growth. Acceptance of the centralized distribution of power creates additional problems to the extent that employees become passive and react reactively rather than proactively to challenges.

In summary, three conclusions appear warranted. First, there are a variety of ways the management of an organization may distribute power and status but the most common is the traditional pyramid. Second, there is a universal preference for the traditional pyramidal structure that is deeply rooted in psychological needs for order and control and our experiences in groups. Even when people espouse a preference for egalitarian distributions, the preference for hierarchical structure can unconsciously affect how they think, feel, and behave. Third, the actual effectiveness of the traditional hierarchical distribution of power as opposed to a more egalitarian distribution depends on the situation.

#### Emergent distributions of power and status

Formal distributions of power and status are seldom replaced entirely by informal distributions and account for much of what we observe in organizational settings (80 – 90% according to Mintzberg, 1983). When subordinates are asked why they comply with directives from their supervisors, they most often state that they obey because their supervisor has the legitimate right to give these requests and they have an obligation to accede (Yukl & Falbe, 1991). People who hold hierarchical positions of authority are more likely they are to lay claim to a leadership identity, whereas those in subordinate positions in the formal structure identify themselves as followers (DeRue & Ashford, 2010). Research in which employees are asked to rate the relative influence of other employees has shown that the formal position is a major predictor of perceived influence (Anderson, Spataro, & Flynn, 2008).

#### Why do informal power distributions emerge?

Despite the powerful influence of the formal distribution, an informal distribution can emerge that departs from the formal design. This occurs regardless of whether the formal distribution of power and status in an organization is in the form of a pyramid or a more egalitarian, flatter structure. The most radical deviations from a traditional hierarchical structure occur when lower level participants who are subordinate to higher-level employees gain power and influence over those higher in the organization (Mechanic, 1962). Departures from an egalitarian structure often occur when a dominant person emerges and wields the most influence in a group in which everyone is officially defined as an equal. The distribution of power and status in an organization emerges from an interaction of the formal hierarchy imposed on employees and characteristics of the participants, the tasks they perform, and environmental influences (Gould, 2002).

There are at least three forces at work that can account for departures from formal distributions of power: formal power is insufficient, the demands of the task and situation require deviations from the formal distribution, and status conflicts.

1. Formal power is insufficient. An informal power and status distribution emerges because more sources of power are required than the formal organizational design can provide to those occupying positions of authority. An effective organization requires at least some degree of proactivity, innovation, and flexibility from employees. In turn, this requires intrinsic motivation in which employees go beyond what is required of them in the formal rules and procedures (Katz & Kahn, 1978). Leaders must use personal sources of power such as referent and expert power to engage the intrinsic motivation of followers (Katz & Kahn, 1978; Zaleznik, 1977). Managers who stick to using rewards, punishments, and legitimacy will have extrinsically motivated followers who will only do what they are required to do and no more. The organization can ensure that employees adhere to minimum standards of performance by providing supervisors and managers with formal power such as rewards, punishments, and legitimacy. The organization cannot provide the person in a position the personal sources of power needed to activate the intrinsic motivation of employees. Personal power is not given but originates from the actions and characteristics of the person in the position (French & Raven, 1959).

There are different dynamics at work in the use of personal and formal power that seem to account for the greater potential of personal power to engage intrinsic motivation (Peiro & Melia, 2003). Formal power is a top down, asymmetrical process in which the successful use of a source of power implies that the other lacks the same source of power. By contrast, personal power is exercised top-down, up-down, and laterally and is reciprocal in that both the person exercising influence and the one who is influenced gain in power as a consequence. Influence is achieved by using referent and expert power, social support, expertise, and attraction. Success in the use of these resources depends on the personal characteristics of the person in the position and the interpersonal relationships with the persons that they attempt to influence. There is even some evidence that the use of formal bases of power lessens the extent to which the user is seen as a leader. In a survey conducted in 32 organizations, employees were asked to rate their perceptions of the power and influence of those who had some influence on their performance (Peiro & Melia, 2003). They found that hierarchical level of the power holder was positively related to perceived reward, coercive, and legitimate power and unrelated to attributions of expert power. Interestingly, they also found that hierarchical level was negatively related to perceived referent power and the power associated with providing social support and solidarity. Employees who perceived that they were influenced as the result of the legitimate, reward, and coercive power of a person higher in the hierarchy, perceived that they had less power.

If the power of those in formal positions of authority is insufficient, those lower in the hierarchy emerge as leaders to fill the vacuum. A radical departure from the formal hierarchical structure is when an employee lower in the hierarchical acquires more power than some of those higher in the hierarchy. In one classic study of deviations from the formal distribution, employees at the lower rungs of the hierarchy in a university (e.g.,

secretaries) wielded more power and influence than one would expect purely from the organizational chart (Mechanic, 1962). One of the sources of their power was their familiarity with the rules and procedures. Another source of power was the dependence of the higher level employee on lower level participants. To the extent that the knowledge of the lower ranking person was unique or not easily transferable and to the extent that lower ranking persons had the motivation and ability to do what the higher-ranking employees would not do, there was a state of dependence of the higher ranked person on the lower ranked person. Dependence provided leverage for the lower level person in influencing the higher level person.

2. Demands of the task and situation. The emergence of informal distributions of power and status stems from changing demands of the task and outside situation. As tasks become more complex, persons lower in the hierarchy may acquire increasing power because they are able to handle issues that those at the top cannot. An increasing dependency of supervisors on subordinates in the hierarchy allows the subordinates to have influence over those higher in the chain of command. A theory of the dynamic nature of power distributions uses the term heterarchy to describe how power relations shift among group members to meet changing situations (Aime, Humphrey, DeRue & Paul, 2014). A power heterarchy is “a relational system in which the relative power among team members shifts over time as the resources of specific team members become more relevant (and the resources of other members become less relevant) because of changes in the situation or task (p. 328).” Support for heterarchy was provided in a study in which employees in two firms were surveyed as to the relative influence of other employees (Anderson, Spataro, & Flynn, 2008). Conscientiousness added to perceptions of how much influence employees in an engineering firm wielded whereas in a consulting firm extraversion predicted perceived influence (Anderson, Spataro, & Flynn, 2008). The authors attribute these effects to tendency of members to change the dimensions on which they judged the power and status of members as the tasks they performed changed. In an engineering group employees worked alone and conscientiousness was valued by employees. In the consulting firm, work was performed in teams and face-to-face contact with clients was crucial. Here extraversion was more valued and predicted perceived influence.

The emergence of informal distributions of power and status is driven in part by the delegation by those in higher positions to those in lower positions. Authority and power are seldom on par with responsibilities and as a result the person who occupies a formal position of authority delegates. This delegation creates a gap between the formal authority hierarchy (FAH) and real authority hierarchy (RAH) (Aghion & Tirole, 1997). In an empirical investigation of the factors leading to the emergence of gaps between FAH and RAH, decision authority was investigated across 761 decisions tasks in a global Fortune 50 firm (Dobrajska, Billinger, & Karim, 2015). Their findings suggest that managers are more likely to delegate decision authority as the number of decisions they make increases and their expertise decreases. In effort to reduce cognitive load, those higher in the hierarchy seem especially likely to delegate decision authority and defer to those lower in the hierarchy in situations where there are changing and unstable demands (Hays & Goldstein, 2015).



3. Status inconsistencies. A third dynamic driving the emergence of power and status distributions that depart from formal distributions are status inconsistencies. Status is the respect that an individual receives based on some value dimension (e.g., education, seniority, race, gender) and is a fundamental motive in human behavior (Anderson, Hildreth & Howland, 2015). Individuals are likely to gear their striving for status to their contributions and typically do not strive for a level of status that goes too far beyond their actual contributions (Anderson et al, 2012). Individuals who lose status suffer from a lower self-esteem, well-being, and physical and mental health. The behavior, emotions, and thinking of people in a variety of settings reflect their striving for increased status and the maintenance of current status. A source of instability in the status hierarchy is inconsistency between the power hierarchy and the status hierarchy on the criteria used to assign status and inconsistencies.

People expect that as the power assigned to a position increases, the status associated with the position will also increase. Persons higher in the hierarchy are typically assigned to them larger offices, a parking space, and other perks, and most importantly, they expect that subordinates will respect their authority. Failing to provide the status symbols appropriate to a position can cause confusion and distress. Imagine the problems that might occur if a top level executive with the authority to make important decisions was assigned a small, inconspicuous office or lacked other status symbols normally associated with a high level position. Those who hold positions of high formal power but have low status appear especially prone to abusive treatment of subordinates (Fast, Halevy & Galinsky, 2012). The failure to assign status appropriate to the position can also lead to competition for status among employees that harms group functioning (Bendersky & Hays, 2012).

The second form of status inconsistency occurs when a person's ranking on one status dimension differs from the rank on other dimensions. Status is based on a variety of criteria such as tenure, education, or past success and the expectation is that if a person is high on one criterion, they are high on the others. Status inconsistency is a source of stress (Bacharach, Bamberger & Mundell, 1993; Biron & De Reuver, 2013). In a demonstration of this, employees were asked to rank the rewards they received relative to their education, career experience, and performance (Biron & De Reuver, 2013). For each one they indicated how they ranked in comparison to other employees on the income, appreciation, and career opportunities they received relative to their education, career experience, and performance. They found that the higher the status inconsistency experienced by an employee, the more stress they experienced and the more frequently they absented themselves from work.

Despite the importance of assigning status symbols appropriate to the position and maintaining consistency among status dimensions, the organization cannot serve as the sole source of respect. Indeed, much of the status associated with a position is the product of what the power holder achieves rather than from what the organization provides. Individuals who hold high levels of power but have low status in the eyes of followers are judged more negatively than those who hold high levels of power and status, low levels

of power and low levels of status, and low levels of power and high status (Fragale, Overbeck & Neale, 2011). Power holders also lose respect because of their own actions such as when top executives lavish on themselves large salaries (Neeley & Boyd, 2010) or indiscriminately flaunt status symbols (Zhang & Morand, 2014).

Unfortunately stereotypes and prejudices are barriers that some types of employees encounter and may prevent them from acquiring status. Holding a position of power can violate expectations associated with associated with a demographic group based on age, gender, and race and can hinder attempts to acquire status. For instance, even when they hold equivalent positions white males tend to possess more power and status than women, and when women are assigned to formal positions stereotyped as male positions, a backlash can occur when they attempt to exercise their power (Rudman, Moss-Racusin, Phelan & Nauts, 2012). Thus, acting assertively is seen as inappropriate and the backlash can include rejection of their authority and efforts to sabotage their success.

Points to ponder:

1. Describe the forces at work that push organizations in the direction of hierarchies in which those at the top have most of the power and status?
2. Why do informal distributions of power and status emerge that differ from the formal distributions of power and status defined in organizational chart?
3. Provide examples of status inconsistencies you have observed at work or in other situations? What are the consequences of these inconsistencies?
4. Describe the concept of a heterarchy. How could an organization use this concept to manage the distribution of power and status?
5. Provide examples that you have observed of how people higher up in the organization lack sufficient power and must depend on lower level participants to accomplish their work.

## Rules

To integrate and coordinate the differentiated activities in an organization, management creates formal structures in the form of rules, procedures, and standards. All three structures are referred to here as rules for the sake of simplicity but keep in mind that some researchers and theorists distinguish among them.

### Formal rules

Rules, procedures, and standards all exist as written, formal statement of what is permitted, not permitted, and encouraged along with the consequences of complying and failing to comply. Rules are generated as organizations attempt to deal with changes and the more turbulent the environment, the more likely organizations will engage in rule changing (March, Schulz, & Zhou, 2000). For instance, up until the 1990s, few organizations had formal rules governing sexual harassment but with the rise of lawsuits and the enactment of laws, most organizations today have generated rules that attempt to prevent inappropriate or illegal treatment of people on the basis of their sex or gender.

Classical management theorists such as Max Weber saw formal, written rules were instrumental to organizational effectiveness. Subsequent research by behavioral scientists brought attention to the limitations of relying on rules to coordinate and integrate the activities of employees (e.g., Gouldner, 1954). Formal, written rules are seldom sufficient to provide for an integration and coordination of activities in an organization. They also can have the unintended effect of encouraging employees to rigidly conform to minimum requirements while discouraging flexibility, innovation, and proactivity. An additional limitation of rules is that a written statement is seldom sufficient. The formal rule must be interpreted and enacted, and in the process of making sense of the rule, an informal reading emerges that may stray far from the original spirit of the rule (Fuller, Edelman & Matusik, 2000). Also, the old adage that rules are made to be broken appears to capture the reality of what occurs in organizations (Martin, Lopez, Roscigno & Hudson, 2013). In some cases, rule breaking is a form of resistance as employees and employers struggle for power. In other cases, rule breaking is tolerated or even encouraged when the rules conflict with performance of tasks (Martin, et al, 2013).

## Social norms

The social norm is an informal structure that can act to subvert, complement, or even strengthen the formal rules. Norms are ubiquitous, although people are not always aware of their influence. The readers may recall situations in which they were a newcomer and found that their behavior did not match the behavior of others. If they were lucky, someone took them aside and warned "we don't do that around here." If they weren't so lucky, they may have suffered embarrassment or public ridicule. An interesting aspect of this type of situation is that the others in this situation are often shocked that the newcomer does not act as they do. In other words, individuals often take the norms that dictate their behavior for granted, seldom thinking about them until a deviant violates them.

What is a social norm? This structure essentially consists of the expectations for how persons in an organization should behave, what attitudes they should express, and how they should appear. Norms can come from the demands of the task, the formal rules set down by the organization's management, or from people's past experiences in dealing with particular situations. Norms exist only for issues that are of particular significance for the organization. Feldman (1984, p. 47) describes four conditions under which norms emerge and are enforced:

1. When they facilitate organizational survival, as in the case of norms against discussing salaries or discussing internal problems of the organization with outsiders.
2. When they help members perform tasks by making behaviors expected by organizational participants more predictable.
3. When they help those within an organization avoid embarrassing or disruptive situations, as in the case of norms against coworkers openly discussing romantic relationships.

4. When they express some central value or clarify what is unique about the organization. For example, the conservative dress that is expected in an accounting firm may exist in part to convey stability, whereas the flashy clothes that are the norm in an advertising agency could convey creativity.

The return potential model. Observing the behavior of employees and looking for patterns is one approach to measuring norms. Because of the expense and obtrusiveness of observations, a more common approach is to ask employees what types of behaviors and attitudes are approved and disapproved. Researchers using Jackson's (1965) Return Potential Model (RPM) to measure norms have each person in an organization rate how others would react if he or she behaved in a certain way. If one used the RPM to measure the norms of an organization for productivity, each employee is asked to indicate for several levels of productivity the extent to which other employees would approve or disapprove. The expected approval or disapproval for each level of performance defines the norm. The shape and other characteristics of this relationship indicate important attributes of the norm. For instance, a particularly important feature of the RPM is the levels of productivity believed to evoke the greatest approval and the greatest disapproval. Assume that one asked employees within two organizations how much other employees in the organization would disapprove or approve if they were to show various levels of productivity (highly approve, indifferent, highly disapprove). On the basis of the employees' combined responses a return potential curve could be generated for each of these work groups that shows the distribution of approval/disapproval among employees. One might note that the return potential curves look something like those in figure 8.5.

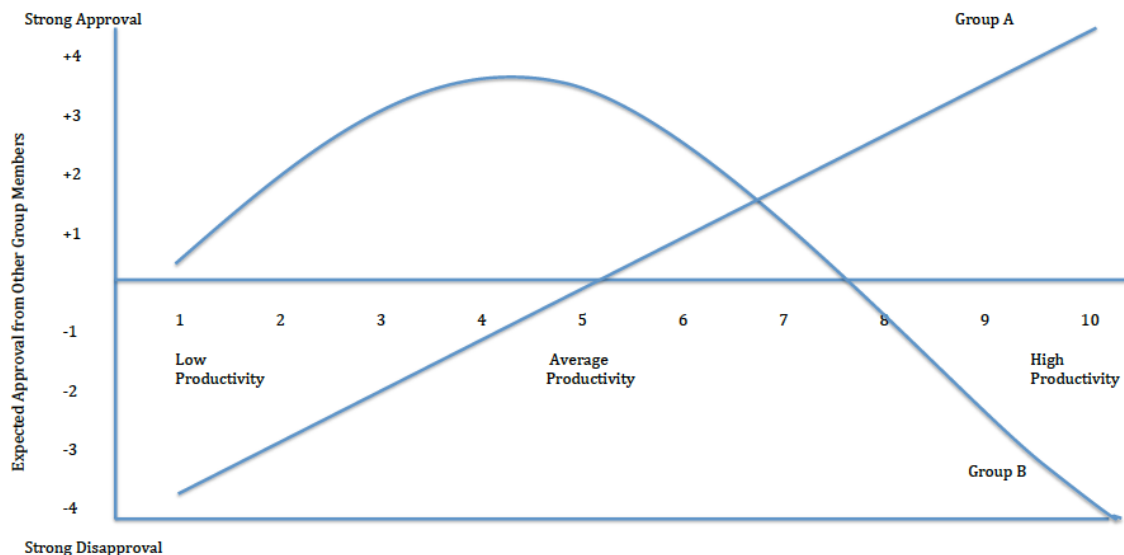


Figure 8.5: Jackson's Return Potential Model of Social Norms

Organization A is management's dream team in that members expect that more productivity will lead to higher peer approval and low productivity will lead to strong disapproval. Organization B is perhaps more representative of what researchers have found for productivity norms (Levine, 1992; Roethlisberger & Dickson, 1939; Roy, 1952;

Stone, 1974). In this organization, employees expect some disapproval if their productivity is too low, but they also expect that if their productivity is too high their peers will react with strong disapproval.

The RPM allows the measurement of several characteristics of norms. The point of maximum return is defined as the level of behavior that receives the highest approval. In organization A, the most approval is given to the highest level of performance, whereas in organization B it is the moderate level of performance that receives the most approval. The range of tolerable behavior refers to the range of behaviors that is approved within an organization. In organization A, the range of productivity that is approved is narrower than in organization B. The potential return difference is computed by taking the highest level of approval and subtracting from this value the highest level of disapproval. Organization B's negative potential return difference (-2) suggests that employees in this organization relies more on punishment in enforcing productivity norms, whereas the zero value for organization A suggests that it relies as much on positive as negative reinforcement. Finally, the crystallization of the norms is computed by assessing how much employees agree on what they expect to result from each level of a behavior. In the examples given in the above figure, the more employees agree on the extent to which each productivity level is approved or disapproved, the stronger the norms.

Reasons for norms. There are several possible reasons that members might have norms that restrict productivity (Rambo, 1982). Such norms may represent an agreement to cooperate rather than compete, thereby maintaining congenial relationships. The most frequently cited reason for restriction in productivity is that employees anticipate that management will adjust work standards upward in response to increased productivity. These norms also may emerge as the result of attempts to maintain equity (see the discussion of equity theory in the motivation module). Restricting productivity can allow for free time in which employees release tension and enjoy themselves (Roy, 1960; Johnson, 1974). Finally, restricting productivity is a form of aggression against management. One of the authors of this text observed this firsthand in a steel mill where employees slowed production to a level far below standards as a way of retaliating against a dictatorial plant manager.

Responses to norm violation. When a norm is widely accepted by employees, those who deviate from this norm can find themselves under severe pressures to conform. Observations of work groups have clearly demonstrated that groups in which there are strong norms are quick to pressure their members. One of the important findings of the Hawthorne studies was that members of work groups exerted pressure on their fellow employees to enforce norms for productivity (see chapter 2). When an employee violated a productivity norm, other members would give that employee a playful whack on the arm (a "bing") as a reminder to slow down. The types of power that groups use in attempting to achieve conformity to norms include all the power bases that we discussed earlier (i.e., rewards, coercions, reference to legitimate authority, friendship, expertise). Although there are individual differences in susceptibility to group pressure (Miller & Grush, 1988; Rhodes & Wood, 1992; Wood & Stagner, 1994), group members generally show a remarkable willingness to comply even when the pressures are subtle. Research in

social psychology has shown that people conform to an obviously wrong majority judgment about 25% of the trials on which they are presented with this incorrect judgment (Bond & Smith, 1996). Conformity is more likely the more ambiguous the standards are for what is appropriate or correct, the larger the group majority conforming to the judgment, when the majority is an in-group to which the person belongs, and in collectivistic cultures than in individualistic cultures (Bond & Smith, 1996).

A normative theory of helping. An example of an application of social norms to understanding an organizational phenomenon is a model proposed for the emergence of team helping norms (Ehrhart & Naumann, 2004; Raver, Ehrhart & Chadwick, 2012). The model is depicted in figure 8.6. Personal norms for helping that are the beliefs or perceptions held by the individual group member about helping are distinguished from group norms that are the aggregate of the personal norms for helping of individual group members. Descriptive group norms are aggregate perceptions of how much helping actually occurs and prescriptive norms are aggregate beliefs about whether members should help each other. To measure each type of norm, group members are asked on questionnaire items whether their group advocated helping each other and the mean responses of team members was taken as the group helping norm.

According to the theory, the emergence of helping norms requires that members of the group observe others helping their peers. The more people in the group help each other, the more likely a descriptive norm for helping will emerge in which group members perceive that there is a lot of helping in the group. The descriptive norm is stronger and more salient to the extent that there is consistency among group members in their helping, and the higher the status and representativeness of the group members who engage in helping. The next link in the model is between the emergence of the descriptive norm for helping and the actual helping by individual group members. In general, the more that descriptive norms convey to a group member that other members are helping, the more likely that person will help. This relation is stronger for group members who self-monitor (i.e., possess a personality trait in which they are sensitive to the views of others). Also, a stronger relation is hypothesized for those lower in status. The reasoning here is that higher status group members can buy idiosyncratic credits with their status and are able to deviate more from group norms than those lower in status (Hollander, 1958). The impact of the group descriptive norm on a person's helping of other group members is also stronger the more similar the person is to other members, the more attracted the person is to the group, the more uncertain the person is about the task

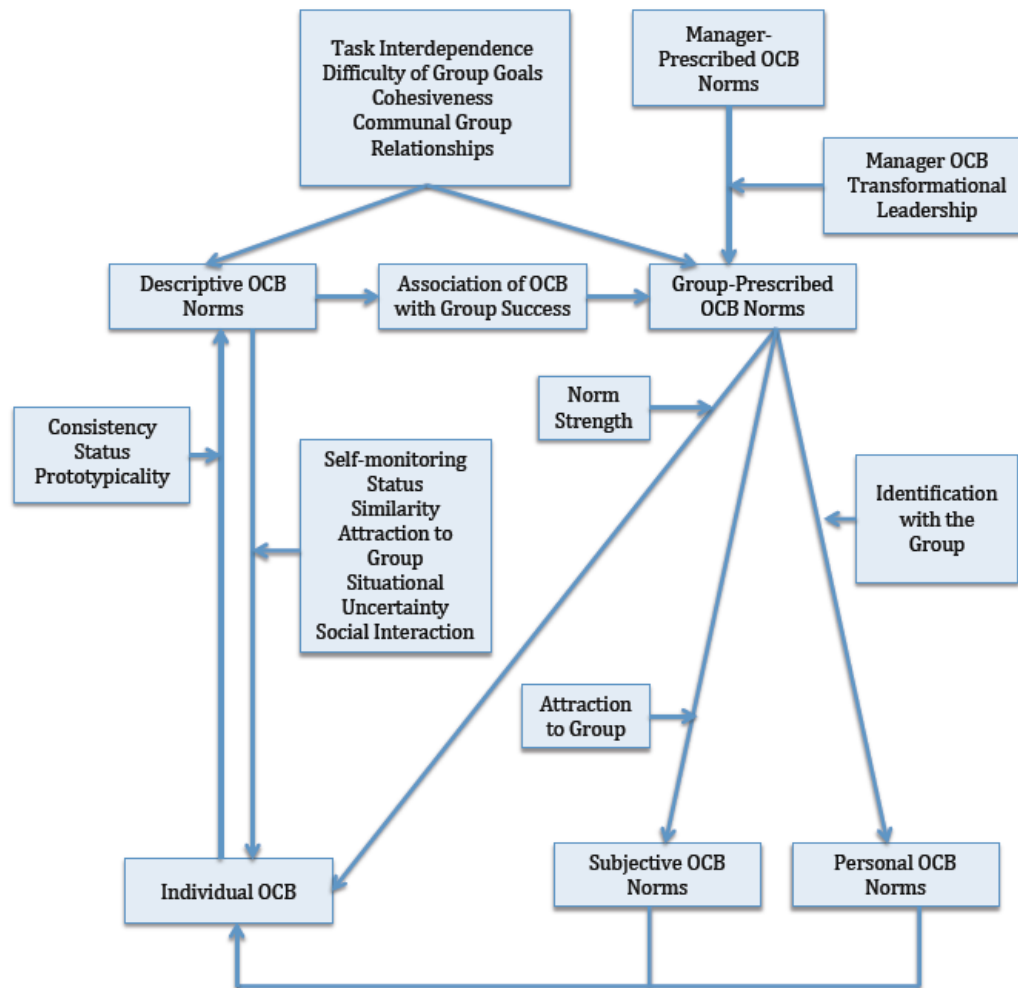


Figure 8.6: A Multilevel, Cyclical Model of Group Norms for Organizational Citizenship Behavior (OCB)

#### Points to ponder

1. Think of an organization or other social setting in which you are currently involved. What are the norms at work and how do they affect the behavior of people in that organization or setting? Which of the norms are obvious to people and which are not so obvious?
2. Considering again the norms that you observed in the first question, why do you think these norms emerged? Which of the norms serve a useful purpose and which harm organization, group, or individuals?
3. Why do people tend to react against people who violate norms? What are some of the ways in which individuals act to bring people who deviate back in line with the norms?
4. For most part, people are remarkably willing to comply and conform to social norms even when these norms are inconsistent with what they think is correct or appropriate. Why do people conform to norms so readily?

5. Consider other organizational behaviors in addition to helping that are influenced by social norms. Describe how you would use the normative helping model discussed here to explain these other behaviors.

### Core Values as Social Structures

In many organizations management attempts to ensure stability in social processes by conveying core values. A value is similar to a norm in that it is a standard against which individuals evaluate the favorability and acceptability of a behavior, thought, or feeling. Whereas norms are specific to the situation (e.g., I should not produce X number of widgets in my job, I should not criticize my peers), values are more abstract and general (e.g., hard work and teamwork are valued). Katz and Kahn (1978, p. 385) identify norms and values as the means by which management pulls together and coordinate the differentiated parts of an organization. Core values define the primary reasons for the organization's existence. Whereas employees have some discretion in whether they conform to peripheral values, it is absolutely essential that they conform to core values. Katz and Kahn (1978, p. 388) state that an organization's values provide the justification for its norms and come in two forms: (1) transcendental, moral, or sacred values or (2) pragmatic values associated with functional outcomes. Values (especially those of the first variety) are largely symbolic and lack a specific tie to an objective situation. This allows them to be used by management to support a variety of programs and actions.

### Formal communication of core values

Management formally communicates the core values of an organization in a variety of ways, but the most explicit approach is the mission statement. Mission statements serve more than one purpose, not the least of which is compliance to federal regulations for annual reporting and attempts to impress shareholders. A typical mission statement contains a statement of the key stakeholders, the objectives of the organization, the strategy, and tactics that are used to achieve these objectives. They also constitute an important vehicle for communicating values.

Mission statements are found on the website for most profit and nonprofit organizations and consist of formal written documents that convey to the public, employees, clients, shareholders, and other stakeholders the reasons for the organization's existence. The intent of this document is to define the real purpose of the organization and the identity that it wishes to project. These mission statements usually start with a vision statement that is a broad communication about the aspirations of the organization. The vision statement of Kentucky Fried Chicken is "To sell food in a fast, friendly environment that appeals to price conscious, health-minded consumers." Google's vision statement is "to provide access to the world's information in one click." Pepsi Cola's vision statement is "to continually improve all aspects of the world in which we operate – environment, social, economic – creating a better tomorrow than today."

In addition to a vision statement the majority of mission statements contain a statement of the core values of the organization. One content analysis of mission statements found that



the most frequently mentioned values were integrity (67 percent), honesty (50 per cent), respect (29 percent), diversity (21 percent), openness (21 percent), and fairness (21 percent) (Wenstøp & Myrmel, 2006). Other commonly mentioned values include quality, shareholder value, profitability and growth, corporate citizenship, teamwork, development of employees, and respect of employees. Some research suggests that corporations stating core values that stress community responsibilities tend to perform better than those that stress profitability and shareholder value (Smith, Heady, Carson & Carson, 2001). Shell states as its core values leadership, integrity, quality, customer satisfaction, people working together, a diverse and involved team, good corporate citizenship, and enhancing shareholder value. Subway states as its core values family (We build our business relationships by serving each other, our customers and our communities, much as we do within our own families), teamwork (We challenge ourselves and each other to succeed through teamwork, against shared goals and to be accountable for our responsibilities), and opportunity (We create an entrepreneurial, ever-growing SUBWAY® community, increasing the opportunity for everyone). Coca-Cola lists what it calls the six Ps as its core values (people, portfolio, partners, planet, profit, and productivity).

The hope of management is that employees will accept the mission statement and use the core values to guide their personal thinking, feeling, and action. As is the case with other formal structures, what is stated as the ideal is often far removed from reality. The way organizations actually operate is often far from the lofty ideals set forth in the mission statement (Bart, 1997). As an example the reader may wish to examine the discrepancies between the core values of one auto manufacturer (<http://www.vwiinc.com/values/>) and recent transgressions of that corporation (<http://www.bbc.com/news/business-34324772>).

#### Informal communication of core values via climate and culture

The informal counterpart of the formal communication of core values by management is employees' perceptions of what the organization stands as contained in the organizational climate or culture. Climate and culture are the most comprehensive of the informal structures discussed so far and encompass many of the other processes and structures discussed in this chapter. Culture and climate are quite similar in several respects (Denison, 1996). Both are described as structural factors that shape thinking, feeling, and behaving. Both attempt to capture how people make sense of their work environments and propose a shared, holistic understanding that emerges as a product of these attempts. Also both are applied to describe the entire organization as well as subgroups of the organization. Despite these similarities, culture and climate spring from different disciplines and are distinguishable in how they conceptualize the emergence of a shared understanding of the organization.

Psychological and organizational climate. This is the individual employee's perception and interpretation of events in the organizational environment as measured in self-report questionnaires or interviews (Glick, 1985). Psychological climate originally was derived from Lewin's (1938) field theory. He proposed that people are situated in a 'life space' and their psychological interpretation of this life space affect how they react to events in

the space. In applying this concept to work, theorists have distinguished between two types of climate.

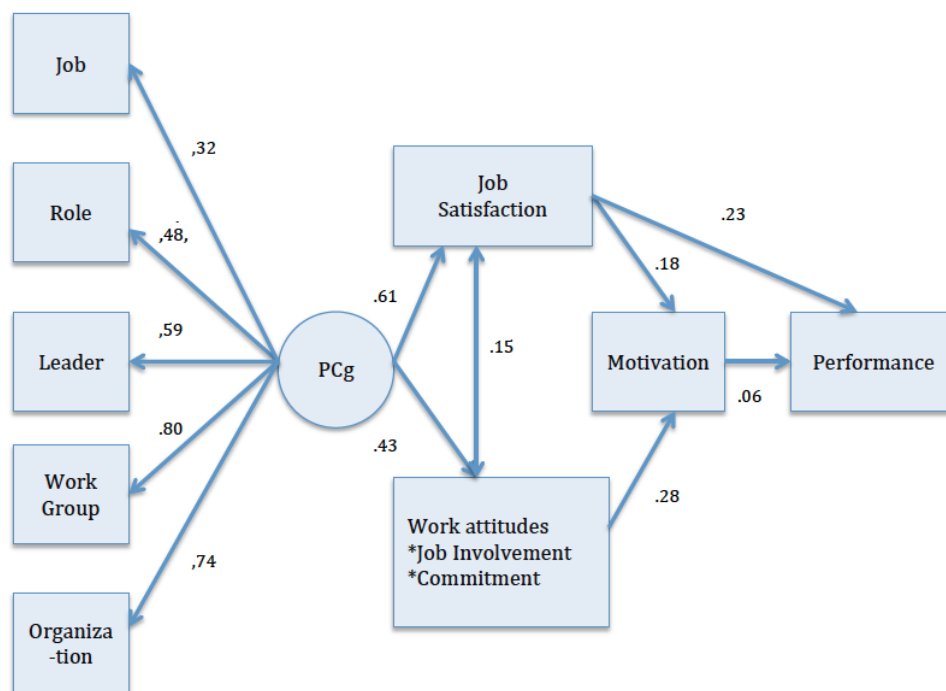
The interpretation of organizational events at the level of the individual and is referred to as psychological climate, whereas the mean or aggregate of these interpretations by employees is called organizational climate (Glick, 1985). Psychological and organizational climate are seen as resulting from both the objective characteristics of the organization as well as the characteristics of the individual, including that individual's needs, values, and cognitive structures. Psychological climate emerges from the attempts of employees to make sense of what is happening in an organization and the shared interpretations that emerge from these attempts. To the extent that there is a strong consensus among employees in their interpretations of events, the organizational climate shapes individual interpretations. This is especially true of newcomers to the organization who are often socialized formally and informally to incorporate the organizational climate that has emerged from previous employees' sense making. Climates exist for the entire organization as well as subgroups within the organization. Researchers have developed survey measures to quantify climates for a variety of issues including customer service (Chen, Zhu & Zhou, 2015; Jang, Chuang, & Chiao, 2015), safety (Zohar, 2014), fairness and justice (Whitman, Caleo, Carpenter, Horner & Bernerth, 2012), creativity (Amabile, Conti, Coon, Lazenby & Herron, 1996; de Fátima Bruno-Faria, 2014; Tseng & Liu, 2011), group competition (Chen, Zhu & Zhou, 2015), motivation (Nerstad, Roberts & Richardsen, 2013).

Employee ratings on climate questionnaires are reducible to a few generalizable dimensions that constitute cognitive schemas or mental structures that employees use to make sense of their work environments. Employee ratings of the organization climate have a hierarchical structure (Burke, Borucki & Hurley, 1992; James & James, 1989). James and James (1989) found support for four dimensions that define the lower level of the hierarchy. These include role stress and lack of harmony, job challenge and autonomy, leader facilitation and support, and workgroup cooperation, warmth, and friendliness. In another study, Burke et al (1992) identified a somewhat different set of dimensions: goal emphasis (i.e., the extent to which clear goals are set for performance), nonmonetary reward orientation (i.e., the extent which the organization links nonmonetary rewards to job performance), and monetary reward orientation (i.e., the extent the organizational links monetary rewards to job performance (Burke, Borucki & Hurley, 1992). Both James and James (1989) and Burke et al (1992) propose a higher order factor in the hierarchy of perceptions that define responses to climate measures. James and James (1989) labeled this factor PCg and propose that it consists of an assessment of whether the workplace benefits or harms the well-being of the employee. PCg shapes the employee's perception of the job, the role, the leader, the work group, and other facets of the organization.

Support for the hierarchical model comes from a meta-analysis that examined the relationships between individual level climate perceptions and work outcomes such as employee attitudes, well-being, motivation, and performance (Parker, Baltes, Young, Huff, Altmann, Lacost, & Roberts, 2003; see figure 8.7). Based on 121 independent

samples in which climate perceptions were measured and analyzed at the individual level, the authors found support for the James and James (1989) PCg model. PCg was influenced by perceptions of the job, role, leader, work group and organization, and in turn, PCg affected job satisfaction and work attitudes. Motivation mediated the influence of job satisfaction and work attitudes on performance.

Somewhat at odds with the findings of Parker et al (2003), Benzer & Horner (2015) concluded from their meta-analysis that there is little support for the PCg model. They present research findings showing two dimensions more accurately represent that psychological climate. Task climate included supervisor goal setting, innovation, and organizational responsiveness. Relational climate included work group warmth and social rewards. They also found that relational climate was a stronger correlate of outcomes than task climate.



Numbers in figure are path coefficients representing the strength of the relation between variables in the model.

Figure 8.7: Structural Model Showing Hierarchical Structure of Psychological Climate Factors and Relations to Outcomes

Organizational culture. The organizational culture construct originated in the sociological and anthropological disciplines and as applied to organizations focuses on the values, norms, and assumptions about how employees should think, feel, and behave (Schein, 1990, 1996). In contrast to the descriptive focus of organizational climate, organizational culture has a normative focus that attempts to capture members' values, beliefs, and assumptions as to the appropriate ways to think, act, and behave (Sackmann, 1991;

Schein, 1990, 1996). Climate is conceptualized at both the individual and organizational levels, whereas organizational culture is an aggregate or collective construct. Whereas climate is usually operationalized as a conscious perception of the organization, Schein (1990, 1996) has argued that organizational culture is in large part unconscious and that climate is only a conscious manifestation of the underlying culture. Consistent with these views, he asserts that self-report questionnaires should not be used to measure culture. He argues that measurement of culture requires observations of how people behave, think, and feel and the use of the qualitative and ethnographic approaches used in sociology and anthropology.

Schein's three occupational cultures. Researchers who have focused on culture seldom attempt to identify generalizable dimensions but instead attempt to capture the unique culture of individual organizations. One exception is Schein's (1996) description of the three occupational cultures that he believes exist within most organizations. The managers and employees who are responsible for delivering services and making the products constitute the "operator" culture. They are the target of the attempts of higher management and engineers to increase efficiency and productivity but often have a much better understanding of the complexities of how the various functions and processes relate and ways of dealing with the day-to-day practicalities of getting the work done. Schein notes that most organizations that he has observed fails to recognize and appreciate the operator culture as a source of innovation and instead attempt to impose on this group managerial practices.

The employees who design and monitor the core technologies of the functional groups in the organization constitute the "engineer" culture. Schein notes that an unconscious assumption in this culture is that things work more efficiently and productively without people. This group sees people as a source of problems and they value solutions that bypass human error and inefficiencies by imposing systems, machines, routines, and rules.

A third occupational culture consists of the executives. These include the CEO and others in the top tier of executive ranks. This culture places great emphasis on accountability to shareholders and maintaining high stock price and dividends. This culture gives only superficial attention to long-range strategy, the concerns of people, or balancing the interests of various stakeholders with those of shareholders. Share price and financial performance are the primary concerns. Schein observes that these values evolve out of the reality that top executives bear the responsibility culture is notes that CEOs the reality is driven by the capital markets and the need to remain financially viable. Though lip service is paid to the "office of the president" and "executive teams," the reality is that CEOs the world over learn that they alone have responsibility for the tough financial decisions. Because they are responsible for many employees, they tend to maintain distance between themselves and subordinates and tend view humans as costs rather than as investments to be nurtured and enhanced. According to Schein (1996) "all of the research findings about the importance of teamwork, collaboration, commitment, and involvement fall on deaf executive ears, because in the executive culture, those are not the important variables to consider (p. 238)."

The executive culture reflects the values of capitalism whereas the engineering culture reflects the values and structure of the engineering and technological occupations and typically conflict with the more experience based values of the operator culture. The conflict among these cultures prevents most organizations from fully achieving their potential and avoiding the inevitable declines that even the most successful corporations inevitably face. Schein observes “The humanistic bias that is inherent in the field of organization studies makes it hard for us to be truly sympathetic either to the technocratic emphasis of the engineer or the financial emphasis of the executive. So we spend our time advocating that “they” should become more aware of the human factor, which is tantamount to saying give up your culture and become a member of ours. Organization studies will not mature as a field until we spend much more time in observing and absorbing these other cultures, learning to see them from the insider's perspective, discovering in that process even other occupational cultures that affect how organizations work” (Schein, 1996, p. 239).

Points to ponder:

1. What is a value and why are they important to the effective management of an organization?
2. Define and distinguish among psychological climate, organizational climate, and organizational culture?
3. What is PCg and how does it impact organizations?
4. Go to the websites of some major corporations and review their mission statements. What are the core values that they present in these statements? What are some of the values that corporations hold in common? What are some of the values that appear unique to a few or one corporation?
5. How would you describe the organizational climate of some of the organizations to which you belong? How is this climate communicated by the organization? What do you see in the language, appearance, people, and other aspects of the organization that convey the climate?

### Shared Social Identity as a Social Structure

A shared social identity is a type of social structure that can occur at the level of the relationship with another person, the group, the organization, the profession, and other collectivities. As in the case of organizational culture and climate, shared social identities potentially encompass all the social structures discussed in this chapter. Identity is perhaps the most abstract of the structural features discussed in this chapter. Nonetheless, it is among the most powerful influences on how employees think, feel, and behave. A vivid example of the potency of identity is seen in corporate mergers and takeovers where employees are expected to relinquish their former corporate identity and adopt a new one (Edwards & Edwards, 2013).

## Formal attempts to create a shared identity

Organizational identity is defined as a written description of the organization defining the central, enduring, and distinctive attributes of the organization (Albert & Whetten, 1985; Gioia, Schultz & Corley, 2000). Management often attempts to convey a desirable image of the organization to employees in the hope that they will adopt and internalize this image. An identity that provides employees and other stakeholders a shared idea about what the organization is now and hopes to be in the future can guide decision-making and efforts to make sense of organizational events (Dutton & Dukerich, 1991).

An organizational identity can take the form of personification in which management attempts to define the organization in terms of human characteristics to employees, customers, and other stakeholders. When applied to products and services this is sometimes called brand personality (Eisend & Stokburger-Sauer, 2013; Aaker, 1997). When applied to organizational identity it is called a corporate brand personality (Keller & Richey, 2004). The findings of the research on perceptions of organizations have shown that people readily assign human traits to organizations (Otto, Chater, & Stott, 2011; Slaughter, Zickar & Highhouse & Mohr, 2004). A study conducted in the United States found five dimensions that corresponded roughly to the big five personality factors (Slaughter et al, 2004). In a study of corporations in Great Britain, researchers found four general factors that overlapped with these five factors and were found to underlie the attribution of personality traits to organizations (Otto et al, 2011):

Honesty: fair, helpful, supportive, cooperative, honest (not tacky) (not exploitative)

Prestige: prestigious, luxurious, high status, formal, good quality (not cheap) (not tacky)

Innovation: fresh, energetic, fashionable, innovative, creative (not formal) (not sleepy)

Power: dominant, powerful, established, popular, active (not cheap) (not sleepy).

There are numerous ways in which an organization can attempt to create a corporate brand personality. The mission statement is one. It is common to find as part of the mission statement the use of human traits such as honesty and friendliness to describe the organization and its aspirations (Ingenhoff & Fuhrer, 2010). Perhaps the most vivid of the means for conveying an organizational image is in advertising. Companies use known celebrities to put a face on the company and convey valued attributes to the public (Goldsmith, Lafferty, & Newell, 2000). The Chief Executive Officer (CEO) serves this role in some organizations (Elsbach, 2003). Take, for example, Donald Trump (Trump Enterprises), Martha Stewart (Living Omnimedia), Oprah Winfrey (Harpo), Richard Branson (Virgin) and the late Steve Jobs (Apple). In each the identity of the organization the CEO heads is interwoven with his or her personal identity.

Some companies have used fictional or nonhuman characters to represent the company or products ([https://en.wikipedia.org/wiki/List\\_of\\_American\\_advertising\\_characters](https://en.wikipedia.org/wiki/List_of_American_advertising_characters)). A recent example is a recent General Electric “what’s the matter with Owen” commercials (<https://www.youtube.com/watch?v=OvfUINpCJQQ>) in which Owen, the fictional character, is telling friends and family about his new job at GE. The corporate identity that is projected via the character is one of seriousness and “impact. The Vice President

of communications describes the “GE works” brand: “Today, it’s more about rolling up our sleeves, focusing on the serious, complicated times that we live in, and that’s why we have shifted our focus – our brand theme – to ‘GE Works,’ which we think is a great way to talk about the impact of The General Electric Company.” (<http://thescli.org/ge-works-communicating-brand-value-impact/>)

Requiring employees to adhere to dress codes or wear uniforms is another way of conveying an image (Pratt & Rafaeli, 1997). Wearing blue jeans and t-shirts to work is prevalent in companies in the high tech and computer industries. More formal attire is still the norm in the finance and accounting industry. In the former case, the informal dress conveys an identity of creativity and innovation, whereas in the latter the dress conveys reliability and seriousness as core attributes in the organizational identity. The design of websites is part of the strategy that most major corporations use to convey a unique, favorable identity (Abdullah, Nordin & Aziz, 2013; Supphellen & Nysveen, 2001). Perusals of corporate websites show the frequent use of pictures of employees at work and at play that are used to convey a favorable and distinct personality of the firm. Programs that are intended to benefit outside communities, to improve society, or to support employees are important means of crafting an organizational image. Ben & Jerry’s ice cream demonstrates its concern for the environment by including in their financial accounting the measurement of the environmental impact of their practices. 3M Corporation conveys its innovativeness and creativity by requiring that research scientists spend 15% of their time pursuing ideas outside their primary duties. Even the architecture that companies use in their corporate buildings contributes to the organizational image. A study of 150 corporate buildings reported that architecture was an important determinant in the attribution of competence, excitement, and other corporate brand personalities (Raffelt, Schmitt & Meyer, 2013).

### Emergent identities in the organization

Organizations use a variety of formal strategies to craft an identity, but similar to the other structural interventions discussed this chapter, the identities that emerge often depart from the corporate identity that is imposed. Social identity and self-categorization theories both posit that the groups to which people belong are important sources of their personal self-concepts and self-esteem (Tajfel & Turner, 1986; Hogg & Terry, 2000). In real life people have a variety of group affiliations (e.g., lawyer, African American, female, Southern Baptist) and which group they decide to use in defining themselves depends on the salience of the group in each situation. The social categories that are important, frequently used, and highly valued become the social categories that they chronically access in defining themselves and others. When people identify with a collective and this identity is shared by others in the collective, the sense of “we are one” can emerge as a force that goes far beyond the influence of other social structures on affect, cognition, and behavior (Swann, Jetten, Gómez, Whitehouse & Bastoam, 2012). As the result of this shared identity, people in the collective conform to roles and norms without any obvious external pressures to do so. They are intrinsically motivated to conform to what is expected of them and incorporate these expectations into their personal identities. They want the collective to succeed because the participants become

one in the sense that “we are the collective” and “the collective is us.” When the collective succeeds, each individual succeeds. When the collective fails, each individual fails.

Figures 8.8 and 8.9 distinguish the personal self-concept and four social identities, each associated with a social category or collectivity. First, there is the relational identity associated with the relationship between the employee and another individual (Zhang, Chen, Chen, Liu & Johnson, 2014). Second, there is the group identity associated with the group to which the individual belongs, including the immediate work group (van Knippenberg, 2000). Third, there is the occupational identity associated with the profession, trade, or job family (Ashforth, Joshi, Anand, & O’Leary, 2013). Finally, there is the organizational identity associated with the organization in which the individual works (Lee, Park & Koo, 2015). Each person’s personal self-concept is influenced and shaped to some extent by these identities. When individuals join an organization they bring with them group, relational, and occupational identities, and these identities along with the organizational identity overlap to some extent their personal self-concepts.

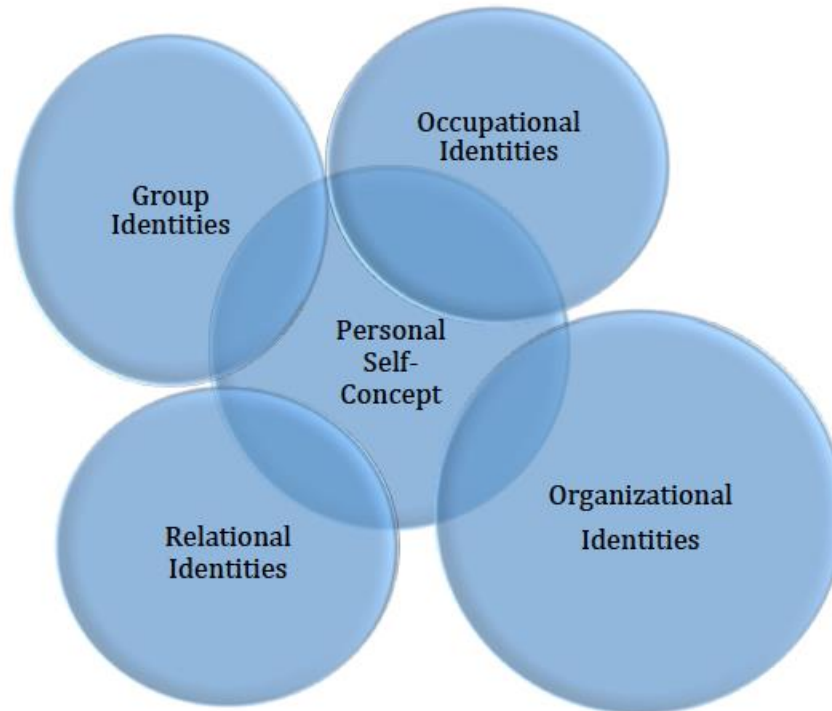


Figure 8. 8: Partial Inclusion of the Organizational Identity



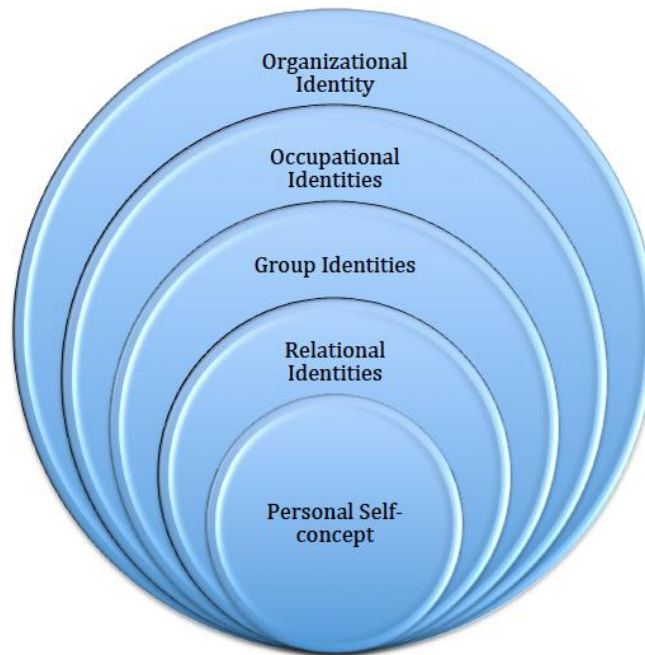


Figure 8.9: Personal Self-concept and Other Identities Embedded in Organizational Identity (Total Inclusion)

The typical situation, illustrated in figure 8.8, is one of partial inclusion in which the organizational identity is only one component of the personal self-concept (Allport, 1962). Figure 8.9 illustrates the situation in which the various identities and the personal self-concept are all embedded in the organizational identity. This might be the case with the workaholic who lives for the organization and has little or no outside life. They work in an occupation but their occupational identity is shaped largely by the practice of the profession within the organization. They belong to groups and form relationships at work and these are the ones that have the greatest influence on their personal self-concept. The book *The Organization Man* (Whyte, 1956) described how large corporations in the 1950s were creating conformist who identified with the organization and whose personal self-concepts were coopted by the organizational identity.

#### The emergence of a shared social identity

Figure 8.10 outlines a process by which shared identities emerge in collectivities at the level of the relationship, group, organization, or profession. The model proposes six steps. The participants in the collective form an image of the social category. They come to believe they all belong to the collective. Participants come to share in their perception of the attributes and ideals of the collective. They enter the collective with pre-existing self-concepts but incorporate into their personal self-concepts the attributes and ideals of the collective. Finally, at the last step of the process outlined in the model, the personal self-concepts of participants merge to form a collective identity in which they attribute to themselves the attributes and ideals of the collective. In describing each step of this

process, the readers are asked to imagine that they are assigned to work on a project and other employees in the organization are also working on various aspects of this project.

Emergence of shared perceptions of the collective. The process starts with perceptions of interactions with others who are working on the project. Several social processes were discussed in the last chapter including communication, exchange, influence and power, political behavior, organizational citizenship behavior, competition, conflict and cooperation, counter-productive work behavior, and socialization. Each of these processes could occur without any awareness of the interaction. Help could be provided to another person in the organization with little awareness by the helper of his own behavior, how the recipient of the help perceives him or the act, or how the other responds to the act. Also, the helper may not expect to provide help in the future and may give little thought to what the other person expects. In the absence of these perceptions, the helping that occurs is likely to occur sporadically and lack a meaningful pattern. Stabilization and predictability in a social interaction occurs when people not only perceive their own behavior and the behavior of the other but also perceive what the other person perceives. Expectations emerge about how to act toward another person and the likely response of the other person. To the extent that expectations are shared, a much firmer foundation emerges for future interactions.

Entitivity. As people interact with others involved in the project they become aware of their membership in relationships, groups, organizations, or larger collectivities such as professions. “I am friends with Fred, my coworker,” “I am part of the engineering department,” “I am an employee of ABX corporation,” and “I am an electrical engineer” are examples of identification in terms of membership at the level of the relationship, the group, the organization, and the profession. The perception of a social interaction as an identifiable entity is the most obvious incorporation of a social category and is sometimes referred to as entitivity (Brewer, 2015). A variety of factors influence the degree of entitivity including similar attitudes and other characteristics, closeness of a relationship, and a common goal. Mere collections of individuals are often transformed by events into a strong social entity with a shared sense of mission and the perception that they are one. Take, for example, a crowd of people attending a football game. A close, exciting contest can transform what is a loose collection into a unified group of fans acting in concert to support their team. The next chapter focuses on groups, a particular type of social entity defined in part by the shared perception of those who interrelated that they constitute a group.

Shared perception of attributes of the collective. Individuals not only come to perceive that a social category exists and that they are part of this category, but also assign attributes believed to characterize the typical qualities of the category. At the level of the relationship with Fred, for instance, the individual might perceive this as a fun loving relationship. At the level of group, he perceives that those belonging to the group are hard working and intelligent. At the level of the entire organization, he perceives the typical employee and the culture of the organization as innovative and adventurous. At the level of the profession, he perceives the typical engineer as intelligent and practical person.

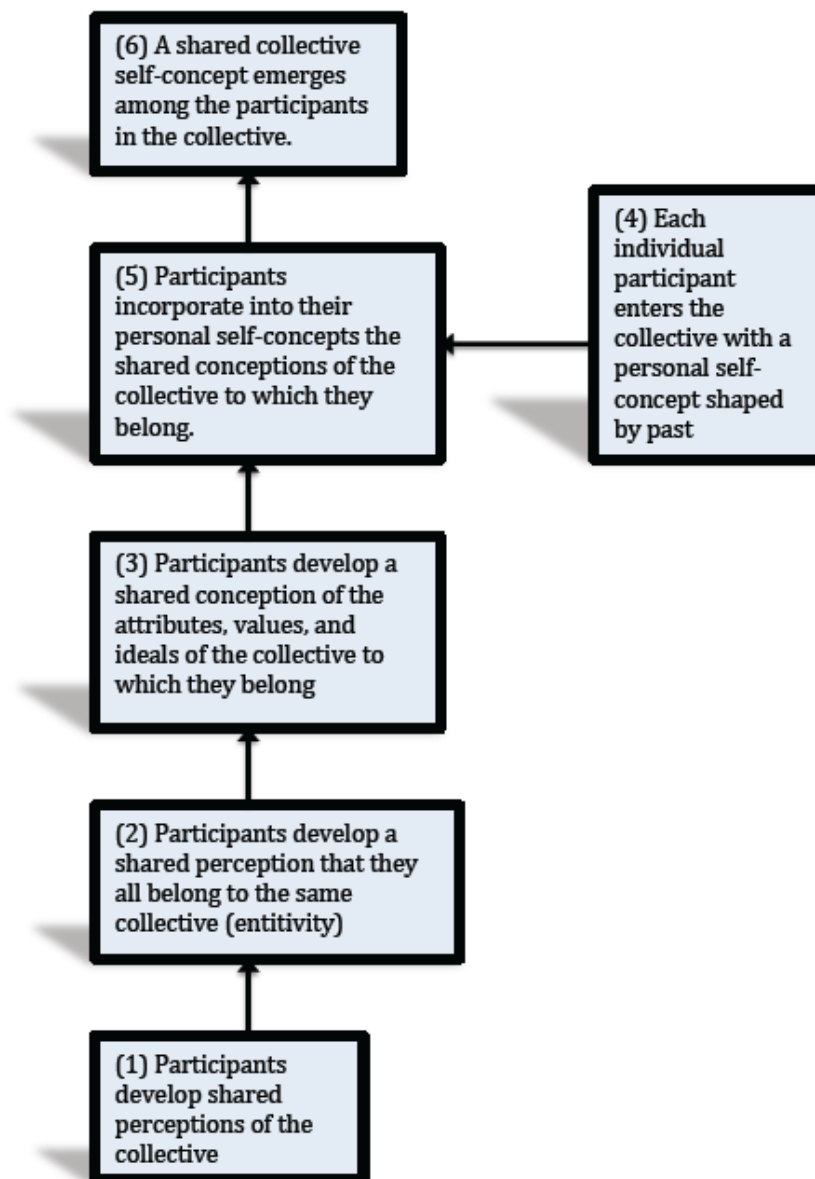


Figure 8.10: A Model of the Process by which a Shared Self-Concept Emerges

Personal self-concept and self-esteem. Every employee enters an organization with pre-existing perceptions of the self. The self-concept is essentially the answer to the question “Who am I?” In answering this question people define themselves with their personal traits, the roles that they occupy, the relationships in which they participate, their material possessions, their beliefs, the groups to which they belong, their physical appearance, and any number of other facets of their lives. A distinction can be made between the actual self-concept or how people describe themselves as they are now and the ideal self-concept or what people would like to become. Self-esteem is basically the discrepancy

between the actual and the ideal self-concept. The private self-conception is what an individual believes about herself, and the public self-conception is what the individual perceives as others' perceptions of her. The theory of the "looking glass self" proposes that people first perceive how others see them and then incorporate these public perceptions into their private self-conceptions.

By the time people join an organization, their actual and ideal self-concepts are well-formed based on family socialization, educational experiences, religious indoctrination, and the variety of groups in which they have participated up until the time they enter the organization. Three dynamics appear to govern the formation of actual and ideal self-conceptions. People attempt to develop an accurate and realistic idea of who they are for the obvious reason that they are only likely to succeed if they find a good fit between their personal attributes and the roles they occupy. Consequently, people seek information about themselves that will lead to valid inferences about who they are and the ideals to which they should aspire. A second dynamic is to maintain consistency between their self-concepts and what they learn about themselves. To the extent that individuals are confident of who they are, they are likely to reject or at least hold suspect information that is discrepant from these self-concepts. If you believe that you are slightly above average on physical attractiveness, intelligence, and physical strength, you are likely to react with skepticism to another person's observations that you are the most attractive and intelligent person they have ever encountered and a virtual Hercules. The third dynamic is the tendency to enhance one's self-esteem. People want to think highly of themselves. A powerful motivating force is to think, feel, and behave and achieve outcomes that will lead to favorable self- and other- evaluations. The tendency to maintain and enhance self-esteem also leads to a variety of self-serving biases including the tendency to take responsibility for successes, blame external forces for failures, and distort the recall of past outcomes.

Incorporation of the collective identity into the personal self-concept. This brings the process to the next step outlined in the diagram. An individual may incorporate his perceptions of the social categories into his personal self-conceptions. To return to our previous example, he might incorporate into his personal self-concept the attributes that he has assigned to the collective. He and Fred have a fun-loving relationship and he is a fun-loving person. His group is hard working and intelligent, and he is a hard working, intelligent person. ABX Corporation is an innovative and adventurous corporation, and he is an innovative, adventurous person. The typical member of his profession is practical and intelligent, and he is intelligent and practical.

According to social identity theory, if people see themselves as part of a group they will boost their own self-esteem and distinctiveness by attributing positive attributes to the group. At the same time, they will view other groups as possessing less positive or even negative attributes as part of the strategy to boost their own self-esteem. Social identity theory proposes that this tendency to enhance the in-group and deprecate the out-group is a fundamental dynamic at work in the formation of the personal self-concept that is independent of any real experience with the groups involved. In the early research testing social identity theory, people were randomly assigned to minimal groups using arbitrary

assignment (e. g., assigning people at random to a “heads” group or a “tails” group). When asked to describe their group and the other groups, they were found to enhance their perceptions of the in-group and deprecate the out-group (Tajfel & Turner, 1986). Subsequent research findings suggest that the boost from assigning positive attributes to the in-group is greater than the boost that comes from degrading out-groups (Balliet, Wu, & De Dreu, 2014).

The social identities that are likely to influence people in organizations to the greatest extent are based on real groups and extensive experiences with these groups. Moreover, people are likely to differ in their propensity to incorporate into their self-concept the attributes seen as characterizing the relationship, the group, the organization, or the profession. One can only speculate as to the factors influencing whether an employee comes to see the self primarily in terms of these social categories. A likely factor is the extent and nature of the socialization of the person into the collective. Merger with the collective identity seems more likely in those collectives that totally immerse the new hire in the culture of the collective, forcing abandonment of past relationships and imposing a common corporate identity to replace past identities. Another factor is the compatibility of the identity with the pre-existing personal identity. As discussed with regard to the ASA model (Schneider, 1987), people are attracted to organizations that fit their KSAs and values even as organizations screen, select, and recruit those who provide a good fit. To the extent that the characteristics of the employees fit the identity, the more likely they are to incorporate it into their personal identity. Still another factor is the prestige and success that the employee achieves as part of the relationship, group, or organization. An employee of a highly prestigious, successful, and well-known corporation seems more likely to adopt as part of the personal self-concept the attributes and ideals of the corporation than an employee of a less well-known and successful corporation.

A variety of social categories compete for inclusion in a person’s personal self-concept and most people incorporate more than one social category into their personal identities. Moreover, there is spillover from one identity to another, such as when organizational identification influences group identification and vice versa (Sluss, Ployhart, Cobb & Ashforth, 2012). Employees are more likely to identify with their immediate work group and their occupation, both of which are more personal and concrete than the larger, impersonal, and abstract organization (Cardador, Dane, & Pratt, 2011; Johnson, Morgeson, Ilgen, Meyer & Lloyd, 2006; Riketta & Van Dick, 2005; Van Knippenberg & Van Schie, 2000). Yet, those who do identify with their organizations exhibit a variety of positive behavioral and attitudinal outcomes, including higher performance, organizational citizenship behavior, job satisfaction, organizational commitment, and job involvement (Lee, Park & Koo, 2015). Likewise, identification with the group has a variety of positive outcomes that the next chapter will review.

Emergence of a shared collective identity. At the highest level of abstraction in the model, employees form a collective identity of the relationship, the group, or the organization. The employees who members of a social category come to share perceptions of that category, come to believe they are all part of the category, attribute to

themselves the attributes of the category. They hold similar perceptions of the important attributes of the categories and believe that they all possess these attributes. The emergence of a shared identity is driven by a collective attempt of participants in sense-making.

“How do others perceive me and the situation?”

“Do we agree in our perceptions?”

“Who am I in this collective?”

“To what extent does my answer to this question incorporate attributes of the role I occupy, my relations to other employees, the group, and the organization?”

“To what extent is there a shared identity, i.e., do others in the organization, group, or relationship also incorporate into their self-perceptions the attributes of the collective in which they participate?”

According to Ashforth, Rogers and Corley (2011), “...the impact of individual identity on collective identity is mediated by social processes; that is, at each extra-individual level of analysis, intrasubjective understanding (“I think”) gives rise through interaction to a shared understanding (“we think”) that, when enacted, in turn gives rise to a sense of the collective that transcends the individuals who comprise it (“it is”)— and, indeed, can survive the turnover of its members (p. 1152).” Thus, the collective identity becomes a structural form that defines reality and transcends the individual identities of the employees in the organization. The strength of this collective identity is defined by the extent of agreement among organizational participants in the attributes and ideals they assign to themselves and the organization. It is also a function of the potential of the collective identity to engage their emotions.

As already mentioned, a shared collective identity can occur at the level of the relationship, the group, or a much larger entity such as the organization as a whole or a profession. Organizations and professions hope to achieve a shared identity in which all participants adopt the ideals and values of the organization and see their membership as a core element of their personal self-concepts. Few organizations or professions succeed in this attempt. Shared group identities are more likely than organizational and professional identities (Riketta & Van Dick, 2005).

Points to ponder:

1. Define self-concept, self-evaluation, and their impact on employee behavior.
2. Social identity theory states that an important source of self-concept are the social relationships in which a person participates. Describe some of these social identities that contribute to an individual’s self-concept.
3. What is a collective social identity? Describe the process by which it emerges in an organization?
4. Partial inclusion is much more likely than total inclusion. What are the implications for what an organization does in attempting to craft an organizational identity and create a collective identity among its employees?

5. Review the websites of some of the major corporations and look for information on the organizational identity that it is conveyed in the website. Provide examples of these organizational identities and how they are communicated.

## Social Networks

Similar to other social structures, social networks add stability to relationships between individuals and groups of people in an organization. So far the discussion has focused on structures in dyadic relationships between an individual and one other person or a small number of individuals. For instance, a norm defines a pattern of expectations for how an individual should behave, think, or feel and emerges from interactions between that individual and the people who constitute that person's role set. An influence structure emerges from the attempts of an individual to influence one or more other people in the organization. Social structures in an organization encompass influence and norms but go beyond the direct, one-on-one contacts discussed so far. Social networks capture an essential characteristic of the organization as a system: in an open system every component of the system influences to some extent every other component of that system.

A social network is really a meta-structure, i.e., a structural element that goes beyond and subsumes all of the specific social structures discussed so far. A social network consists of a group of actors and all the dyadic relationships or ties between these actors. The actors could be individual employees, groups of employees, or even entire organizations. The relationships include not only the immediate and direct ties between these actors but also include all the indirect ties. An example of an indirect tie when an individual has no direct contact with another person but that other person is a friend of a person with whom the individual does have direct contact. When applied to an influence network, the interconnections would include not only the people that an individual influences but also the people who influence the people that the individual influences, the people who influence the people who influence the people the individual influences, and beyond. The fishnet analogy used to describe the role set also serves as a useful model for describing social networks. Each knot in the fish net is analogous to each actor and the threads connecting the knots are analogous to the ties or relationships between actors. If one picks up the net at any one knot, the entire net is lifted. Similarly, the connections in a social network allow any one actor to influence to some degree all other actors in the social network. Fish nets that are tightly woven would differ in their performance from a net that contains many broken threads. Similarly, social networks can differ in the extent to which actors are interconnected. A social network is often conceptualized as a web of conduits through which information, influence, emotional support, resources, and a variety of other content flows from one individual and groups of individuals to others in the network. A social network captures the structure of these flows and can show how this structure can either facilitate, or constrain social processes in the organization.

Sociologists have conducted the most research on social network analysis, but psychologists are beginning to recognize the importance to individuals of the social networks in which they participate (Westaby, Pfaff & Redding, 2014). People participate

in a variety of social networks that include personal or support, work, friendship, and family networks and global networks that encompass all the connections between an individual and others (Wrzus, Hänel, Wagner, & Neyer, 2013). In a meta-analysis of 277 network studies involving 177,635 participants, the size of the global social network (all named relationships) was found to increase up to about 25 years of age, after which it steadily declined with age. There were variations among the sub-networks. While friendship and personal support networks declined throughout adulthood, the size of family networks stayed about the same from adolescence to old age. Global and personal support networks were larger in individualistic societies, where there is an emphasis on engagement in a variety of relationships outside the family, than in collectivist societies, where the emphasis is on in-group and family relationships. In general, variations in social networks over the life-span appeared to reflect normative events that occur for everyone at about the same age, such as marriage and entry into the labor market rather than non-normative events that are relatively rare such as a war or affect only a few people such as winning the lottery. For instance, the coworker network increased when individuals entered the labor force.

### The method of social network analysis

Social network analysis is a quantitative technique used to identify the informal groups within an organization and the structural characteristics of these groups. Ideally an outside observer would record who interacts with whom and tally the frequencies. Because it is often impractical to do this, almost all social network analyses in the organizational research rely instead on self-reports of the individuals. Individuals are typically asked to list three to five people who constitute their most frequent or intense contacts on some dimension. A matrix is constructed showing the frequency with which every other person in the network was nominated or listed by the respondent in response to the questions. Each respondent constitutes a node and is linked to others in the network. When one person chooses another, a link or relationship exists and is denoted by a line connecting the two individuals (nodes). This matrix of data allows the researcher to draw a map of the social network, measure the attributes of the network, and determine the role of each participant in the network. Researchers have examined a variety of networks each defined by the questions asked in the network analysis questionnaire. These include friendship (Lee, Yang, Wan & Chen, 2010), trust (Kim, 2015; Lusher, Robins & Kremer, 2010), advice (Bono & Anderson, 2005; McDonald & Westphal, 2003; Wong, 2008), social support (Hlebec & Kogovšek, 2013; McGuire, 2007) and influence (Bono & Anderson, 2005), to name only a few. In each case, the network defines the flow and exchange among individuals of the behavior, affect, and cognition identified in the question.

Social network analysis has its own somewhat peculiar terminology. In the parlance of social network analysis, an ego-centered network is constructed by surveying or observing the relationships of an individual who is called the focal person or ego with a number of other persons who are called alters. Although this chapter will emphasize the research on networks in which the ego and alters are individual people, almost any entity could constitute an ego or alter. A social network analysis could measure a network made



up egos and alters in the form of groups, organizations, and even whole societies. A direct link exists if an ego chooses an alter or an alter chooses an ego.

The degree measure in social network analysis is the number of direct links between the ego and alters. In-degree is the number of links representing the nomination of the ego by alters. The prestige or popularity of an ego is reflected in the number of in-degree choices. Out-degree is the number of links representing the nomination of alters by ego. When an alter nominates the ego but the ego does not nominate the alter (or vice versa), choice is represented by a one-way arrow. This does not mean the interaction between the two is strictly one way, only that one person chose the other whereas the other did not. A reciprocal relationship in which ego chooses alter and alter chooses ego is represented by a line with a double arrow. In indirect links the ego is connected to an alter via other linkages.

To illustrate, assume that person A in Figure 8.11 is the ego and the others in the network are the alters. Ego is directly linked to six others (B, C, D, E, F, G) but is indirectly linked to six others (H, I, J, K, L, M). The in degree measure for ego (A) is 2 (A nominated two others). The out degree measure for ego (A) is five because five of the alters nominated A. The closeness of the ego to alters in the network is the ease with which the ego can reach all alters in the network and is usually measured by taking the average of the distances between the ego and the alters. The closeness of a direct link is 1 with proportionally smaller numbers assigned to indirect links.

Based on a social network analysis, one can also identify various roles. A star is a person who is highly central in the network such as person A. A liaison is one links two or more groups but is not a member of either group, such as N in our example. A bridge is a person who is a member of two or more groups such as G and E in the example. A liaison or bridge may act as a broker who takes advantage of structural holes in the network and enables a flow of information that might not otherwise occur. A gatekeeper is one who mediates or controls the flow of affect, information, or cognition between one part of the network and another. An isolate is one who has no or relatively few links such as person P.

Points to ponder:

1. Define what is meant by social network? Why is it referred to as a meta-structure?
2. Social network analysis has its own somewhat peculiar set of terms. Define the following:
  - a. alter
  - b. ego
  - c. direct link
  - d. indirect link
  - e. in-degree and out-degree
  - f. prestige (popularity)
  - g. reciprocal link
  - h. closeness

i. star, bridge, liaison, gatekeeper, isolate.

3. Observe interactions among people in a group to which you belong (e.g., a class in which you are enrolled). Represent each person in the group with a circle and draw lines that describe their interrelationships. Who are the stars? Who are the isolates?

### Dynamics influencing the emergence and maintenance of social networks

Although social network analysis is a methodology, there are several dynamics that are commonly theorized as associated with networks across a wide variety of domains including organizations and work groups (Borgatti, Mehra, Brass & Labianca, 2009). Networks define both opportunities and constraints for the persons occupying the nodes in the network and shape the outcomes of the individuals and the network.

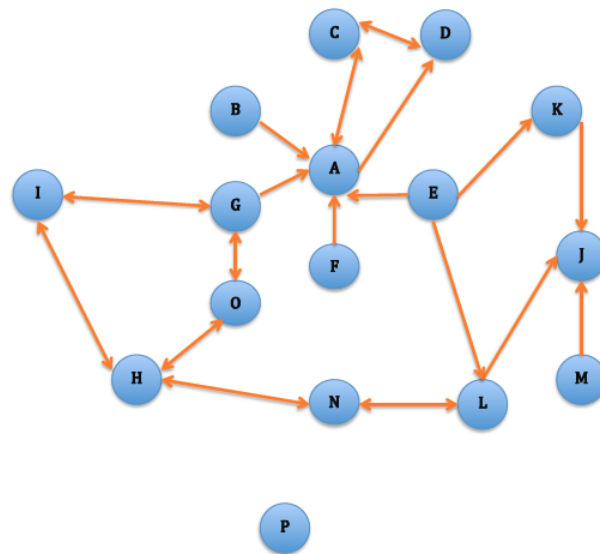


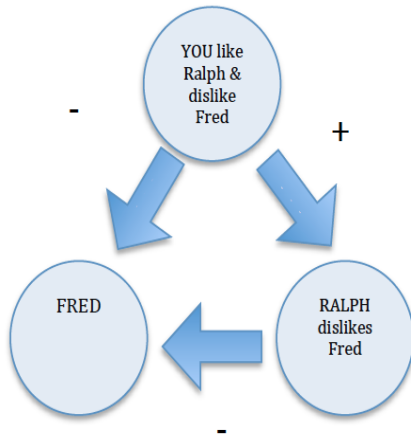
Figure 8.11: A Hypothetical Social Network

**Balance.** The search for and maintenance of cognitive and interpersonal balance in relationships and the avoidance of imbalance are important dynamics in social networks (Heider, 1958; Cartwright & Harary, 1956). The readers are asked to consider another person with whom they have a relationship. Let's refer to this person as Ralph. Now the readers are asked to assume that they either like or dislike Ralph and that they perceive Ralph as either liking or disliking a third person, Fred. According to balance theory the readers will form an attitude or feeling toward Fred that maintains or achieves cognitive balance. The basic rule of thumb is that relationships in a triad are balanced when all three of the persons in the triad like or have positive views of each other or when two of the attitudes are negative and one is positive. Each of these balanced triads is represented in figure 8.12. The triads with all positive valences or two negative and one positive valence are balanced in that the person who is the focal person (YOU) would feel comfortable or at least would feel no tension over the set of relationships. The triads in figure 8.13 are imbalanced. In three of these triads, two of the relationships are positive and one is negative. According to balance theory, the focal person (you) is likely to feel discomfort or tension over the set of the relationships. In the fourth of the imbalanced set

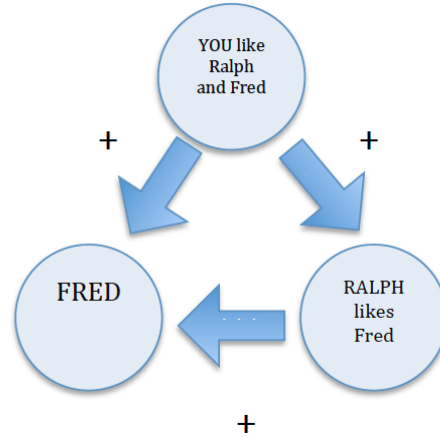
of relationships, all three relationships are negative. There is some controversy about whether this triad is imbalanced or balanced. More likely it is somewhat irrelevant. How many times have the readers worried that two people they dislike also dislike each other? This is rarely a concern and is unlikely to serve as the basis for the emergence of a social network. Relatively few studies exist testing balance theory predictions for the emergence of networks in organizations. In a study of adolescents over a three-year period, friendships were found to form and were maintained consistent with what balance theory would predict (Rambaran, Dijkstra, Munniksmma, & Cillessen, 2015).

Contagion effects in social networks. Social networks serve as conduits through which processes and structures flow. An implication is that affect, thinking, or behavior spreads across the network following the links among the members of that network. This spread of influence is called contagion and constitutes the third dynamic affecting social networks. In its simplest form, contagion effects are demonstrated when (1) the ego or focal person in a social network acts, thinks, or feels in specific way, and (2) this increases the probability of other persons linked to that ego or focal person acting, feeling, or thinking in the same way. A contagion effect is said to exist when the focal person's score on whatever is the focus of the contagion effect is positively related to the average score on the same measure of the network members with whom the focal person is linked (Burt & Janicik, 1996). As an example, assume that there is a belief held by person G in the network depicted in figure 8.11 that management of the firm is about to fire a lot of employees as part of a cost reduction plan. G's belief spreads through direct links to persons O, I, and A, and then through indirect links to D, C, H, N, J, and L. When applied to disease, contagion implies not only that one person affects another person in a network but also that the effects escalate over time so that the rate at which people contract the disease escalates with the passage of time. However, much of the research on contagion effects in the social network literature has adopted a simple influence model without examining spread across the network as a function of time or the rate at which adoption changes over time. In a study demonstrating contagion in adoption of prescription drug, physicians were asked to list three of four physicians with whom they most often found themselves discussing cases or therapy in a typical week (Burt & Janicik, 1996). Contagion was measured by computing the correlation between the adoption date in using tetracycline and the average adoption date of the physicians identified as advisers and discussion partners.

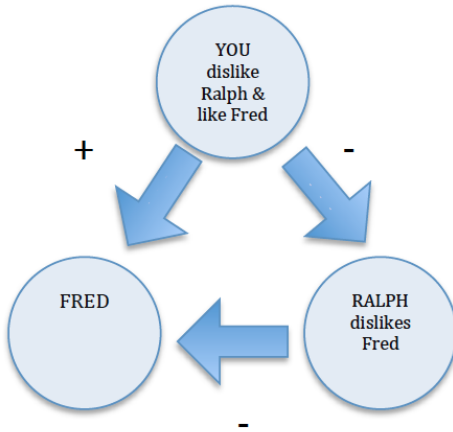
**Balanced: My friend's enemy is my enemy.**



**Balanced: My friend's friend is my friend.**



**Balanced: My enemy's enemy is my friend.**



**Balanced: The friend of my enemy is my enemy.**

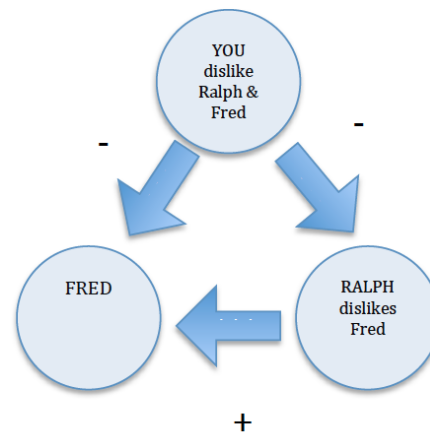
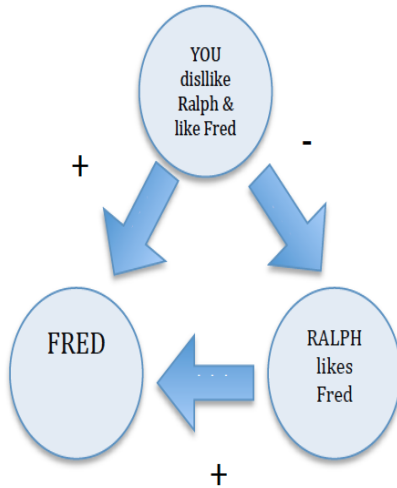
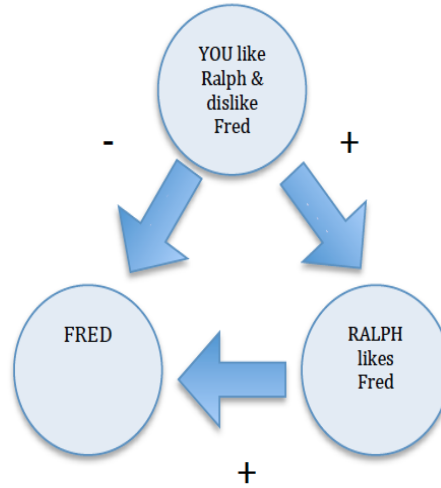


Figure 8.12: Balanced Triads

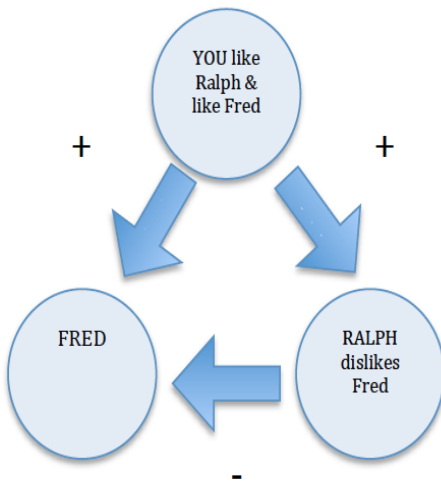
**Imbalanced: My enemy's friend is my friend.**



**Imbalanced: My friend's friend is my enemy.**



**Imbalanced: My friend's enemy is my friend.**



**Imbalanced: The enemy of my enemy is my enemy.**

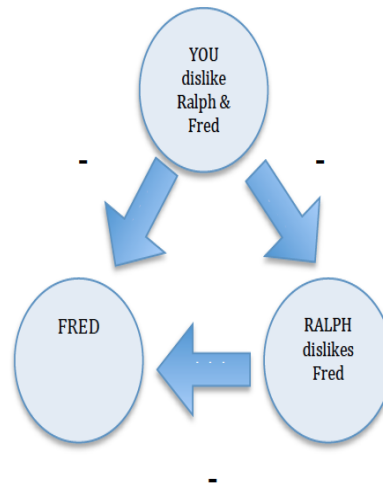


Figure 8.13: Imbalanced Triads

There are at least three sources of contagion effects. In coworker contagion, the aggregate of the perceptions, attitudes, or behavior of other coworkers in the situation shapes the corresponding perception, attitude, or behavior of the target employee. Burt and Janicik (1996) referred to this type of contagion as cohesion contagion whereas Feeley and Barnett (1997) called it simply social influence. This type of contagion is demonstrated with positive correlations on the affect, cognition, or behavior between the target person and the average of all connected coworkers.

A second type of contagion is structural equivalence contagion. Two employees are considered to hold structurally equivalent positions in a social network if they are connected to others in similar ways. In the examples provided figure 8.14, A, B, and C seek advice from D, and E, F, and G seek advice from H. A, B, and C are not structurally equivalent to E, F, and G. Likewise, D and H are not structurally equivalent.



Figure 8.14: Example of Structural Nonequivalence

Contrast these with the two examples in figure 8.15. Here A, B, C, E, F, and G are structurally equivalent in that they are all connected to the same nodes, D and H. Likewise, D and H are structurally equivalent in that they are both connected to A, B, C, E, F, and G.

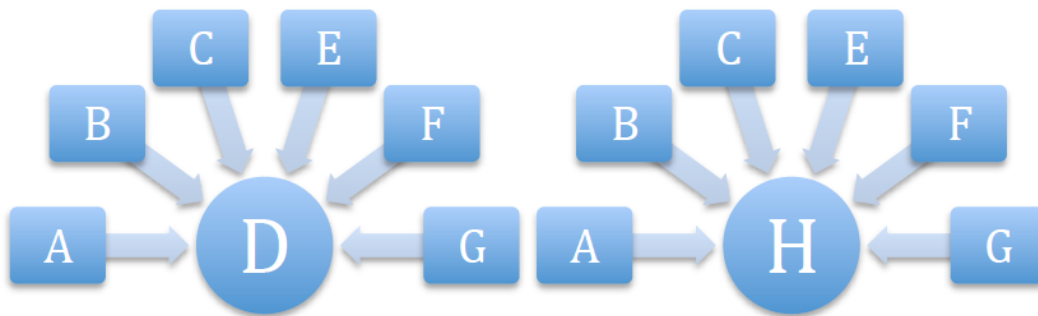


Figure 8.15: Example of Structural Equivalence

Employees in structurally equivalent positions are more likely to receive the same information and are more likely compare themselves to each other. As a consequence, they are more likely to share similar beliefs, feelings, and behaviors. This type of contagion is demonstrated with positive correlations between the target person and structurally equivalent employees in the organizations.

A third type of contagion in turnover is leader contagion. The supervisor or manager of employees is typically the most influential individual in the social context of the employee. Consequently, the perceptions, emotions, and behaviors of the individual in

the leadership role appears to have an inordinate impact on the corresponding perceptions, emotions, and behaviors of followers. This type of contagion is demonstrated with positive correlations between the target person and the individual in a leadership role.

Two psychological mechanisms play an important role in mediating contagion effects. One is the nonconscious mimicry. People tend to adopt the facial expressions, postures, and behaviors of others when interacting with them and are often totally unaware that they are imitating the other individual. Contagion is also a product of conscious observation of others and processing of information. These are the more frequent mediators of contagion that spreads through structurally equivalent participants in the network. There is often little opportunity for direct contact that would allow for mimicry among structurally equivalent persons. Instead, they are more likely than nonequivalent persons to compare themselves and in the process of this comparison, adopt the feelings, thoughts, and behaviors of each other.

Turnover and turnover intentions appear especially conducive to contagion effects (Barsade, 2002). Felps, Mitchell, Herman, Lee, Holtom and Harman (2009) demonstrate coworker contagion on turnover intentions. According to the authors, “a coworker’s search for job alternatives or actual quitting can spread, through a process of social contagion, to affect another employee’s quitting behavior. Like the contagion of illness, the process involves the transmission of something from one individual to another. For us, the “something” is the tendency to leave a job” (Felps et al, p. 546). Krackhardt and Porter (1986) found in a fast food restaurant that turnover occurred in clusters among structurally equivalent workers (i.e., workers who had links with similar persons). According to the researchers in this study, a crucial mediator of structural equivalence and turnover is the perception by employees occupying structurally equivalent positions that they are similar. It is this perceived similarity emerging from structural equivalence that directly affects whether the target employee leaves or stays. The authors compare the spread of turnover to a snowball that rolls down a hill and accumulates snowflakes in the process: “A snowball does not randomly accumulate snowflakes in the area. Rather, snow adheres to the snowball in a discernible path. Similarly, the patterns of turnover will not be independently distributed across any workgroup. People are not independent actors. They affect each other in their behavior. Moreover, the degree to which they affect each other depends on the relationship between them. Social network analysis provides a framework for assessing these relationships and for predicting their effects on individual members” (Krackhardt & Porter, 1986, 50).

Leader contagion also is found for turnover and turnover intentions. Castle (2005) report that the turnover of the top management of a nursing facility is positively related to the turnover of caregivers in the facility. O’Neill et al (2009) report that the intentions to leave an organization among lower level managers is predicted by the reports of negative work-to-family spillover by top level management. According to the authors, “If leaders have a difficult time with work having negative effects on family life, they may be moodier and more difficult to associate with at work, and their negativity may be contagious.” In a third study showing contagion originating from leaders, Ratnasingam

(2013) report that engineering firm employees mirror the withdrawal behavior and attitudes of their supervisors.

In perhaps the only coherent theory attempting to explain turnover contagion, Bartunek, Huang and Walsh (2008) define “collective turnover as the turnover of two or more organization members in close temporal proximity based on shared social processes and decisions” (p. 6). In their model, events that trigger satisfaction lead to complaints and when there is an unsatisfactory supervisor response, employees in the group engage in conversations. This leads to emotional contagion in which negative affect spreads from one group member to another and collective sense-making in which members attempt to understand the dissatisfying circumstances. As part of the sense-making, group members engage in social comparisons in which they contrast their experiences with those of out-groups and potentially magnify or distort their experiences. Emerging from the group process are shared negative perceptions and emotions. The emergence of shared emotions and perceptions are stronger the more cohesive the groups and can escalate over time as group members reinforce each other’s feelings and perceptions. If they are not resolved, these feelings and perceptions lead to the intentions on the part of employees to leave and a search for alternative positions.

Small worlds. A third dynamic observed in social networks is the small world phenomenon. In defining the small world effect, the readers are asked to recall situations where, in the course of a conversation with a total stranger, they learn that they and the stranger are both acquainted with a third person. This is the “small world phenomenon.” It occurs when any two individuals in a social network are connected through relatively few mediating connections. It is not surprising that a small network in which all the participants are interconnected is a small world. What is more surprising is to find the small world phenomenon occurring in very large networks.

In the classic demonstration of the effect, Travers and Milgram (1969) sampled pairs of individuals and examined how many connections existed between them. The starting and target persons were selected to reflect individuals who were geographically and culturally distant and very unlikely to know each other. In one study, a Boston stockbroker was chosen as the target person and the starting persons were randomly selected from people living in Nebraska. The starting person was given the name of the target person and some basic information about that individual (e.g., the person lived in a Boston suburb, works in Boston, place of employment, college and date of graduation, military service, wife’s maiden name and hometown). If the target person was unknown to the starting person, the starting person was to send the name and information about the target to someone they believed would be more likely to know the target person. In turn, if the individual to whom they sent the folder of information did not know the target they were to send the information on to someone they knew that they thought might know. Of the 217 starting persons who sent the folder of information on the target person, 64 eventually made it to the target. The mean number of links taken to the target person was 5.2 and the modal number of links was six. Sixty percent of the cases passed through only four persons in arriving at the target.



Although the original research had methodological flaws, subsequent research has replicated the small world phenomenon in a variety of social networks including inventors in Silicon Valley and Boston (Fleming & Marx, 2006), scientists (Newman, 2004), creative artists (Uzzi & Spiro, 2005), Hollywood actors (Watts, 1999), rappers (Smith, 2006), and venture capitalists (Kogut, Urso, & Walker, 2007). The so-called six degrees of separation that seemed to exist in the original study is not an inevitable finding. In a study of several thousand directors serving on the boards of several hundred of the largest U. S. corporations, the distances between directors and firms was much shorter (Davis, Yoo, & Baker, 2003). For instance, 97% of the largest firms they studied were within four degrees of Chase Manhattan Bank. The authors conclude “the corporate elite is a small world – the average distance between directors and between firms is very short; and second, this property is highly resilient over time and evidently does not require any design or any particular type of firms (such as banks) – rather, it is an endemic property of social and other networks..... It is this small-world property that can turn a geographically dispersed population of nearly 5000 directors into the compact social and psychological entity described by Mills. It also renders the population especially susceptible to outbreaks of managerial contagion, just as international travel has much enhanced the career prospects of flu viruses and the Internet has greatly...” (p. 303).

Four network characteristics are required for a small world phenomenon to be considered surprising or interesting (Watts, 1999). First, a large network is needed. Finding a small world effect in a single organization of 1000 employees is not as remarkable as finding the effect in the entire industry encompassing this organization in the U. S. (e.g., a bank and the banking industry that it is part of), or the world-wide banking industry. Even more remarkable is finding the effect in a network consisting of all businesses around the world. A second precondition is that the network is relatively low in density in that each participant in the network is connected to relatively few other people in the network. A third precondition is that the network is decentralized rather than having a central participant or node that connects all the other participants or nodes. The fourth precondition is that the network is clustered so that there are overlapping friendship circles in which many of one’s friends are friends of each other. In these overlapping clusters, choice of friends is not random but is transitive and balanced with friends of friends chosen as friends. One could add to these four conditions, the existence of linchpins or individuals whose personal networks cuts across many other networks and who provide shortcuts in communication among network participants (Watts, 1999; Davis et al, 2003). Linchpins are nodes in a network and are disproportionately high on betweenness centrality. They are in a sense “super connectors” (Uzzi, Amaral & Reed-Tsochas, 2007). One study observed that as few as 1% linchpins in a network is sufficient to create a small world effect (Watts, 1999). When these conditions are present, a small world phenomenon is likely to occur. When they are not present, a small world phenomenon is less likely or if it does occur, it is unremarkable (e.g., in a small, highly dense network).

The number of studies showing a small world effect in social networks is impressive, but does smallness affect the performance of the network? Is it always advantageous to the

performance of an organization, a unit within the organization, or an individual to have a social network that is a small world? The findings of research conducted so far are mixed with the consequences for performance apparently dependent on the context (Uzzi, Amaral & Reed-Tsochas, 2007). Some research suggests that there is an inverted U relation in which performance increases as the network becomes smaller but that there is a point beyond which performance declines (Gulati, Sytch & Tatarynowicz, 2012; Uzzi & Spiro, 2005).

Points to ponder:

1. Review the balanced and imbalanced triads in figures 8.12 and 8.13. Think of relationships you have observed or in which you have participated that represented these various configurations.
2. Consider each of the configurations in figures 8.12 and 8.13. How would you feel about each set of relationships? What would you likely do in response to the imbalanced triads?
3. Describe the concept of contagion in the context of social network analysis. What are the different types of contagion effects observed in the research on social networks?
4. Embeddedness is a concept introduced to predict turnover. Describe it and show how it potentially influences turnover. How could degree of embeddedness affect other employee attitudes and behavior?
5. Describe the concept of a small world and the conditions in which it is most likely to occur. How could management use this concept to more effectively manage an organization?
6. Have you ever experienced a “small world” effect? Describe it and relate your experience to the dynamics and structure of social networks.

The social network as a source of social capital

Contagion, balance, and the small world phenomenon determine who interacts with whom and provide the basis for the formation and maintenance of a social network. The structural characteristics of the social network that emerge provide social capital that shapes the effectiveness and well-being of the groups and individuals that constitute the network (Oh, Chung, & Labianca, 2004). The work of organizations requires capital, including financial assets, physical assets in the form of equipment, space, and technology, and human assets in the form of the talent and motivation of the individual workers. They also require social capital in the form of good relationships among people (Adler & Kwon, 2002; Oh, Chung, & Labianca (2004). Social capital is defined as social relationships that create good will, provide access to resources, and enhance well-being. The good relationships that constitute social capital provide opportunities, motivation, and abilities that are applied to activities and can generate value (Adler & Kwon, 2002). Similar to money, social relations are assets that can be invested with the expectation of future return. Similar to physical assets such as equipment, social capital needs maintenance. Social capital can substitute for or complement other assets. For instance, financial rewards may increase productivity, but the addition of social capital in the form of a cohesive group might lead to increases in performance above and beyond what was

achieved with incentives. Social capital can also substitute for other assets as would be the case when a cohesive work group provides a boost to performance despite the absence of financial incentives.

Social networks enable the accumulation of social capital in two ways (Burt, 2005; Oh, Labianca, & Chung, 2006). One source of social capital is internal to the group and is associated with the closure that comes from ties among participants in a network that are strong, positive, multiplex, and reciprocal and from bridging relationships among members of the group. In this case social capital is acquired as the result of bonding within the network and relationships that encourage trust, a common social identity, and social cohesion. The other source of social capital is associated with bridging between members within the group and bridging between the group and individuals outside the group. External bridges provide a conduit to sources of novel information and enable innovation and creativity.

It is difficult to optimize both the internal and external sources of social capital. The accrual of social capital usually involves tradeoffs. For instance, closure that comes from highly reciprocal dense relationships may enhance social cohesion and create a highly motivated team but stifle creativity. Burt (2005) proposes that performance is highest when networks effectively balance bridging and bonding, and are high on both. Bridging and bonding in the social network build social capital in the form of information that is diverse, timely, and relevant, political resources, emotional support, and mutual trust (Oh, Labianca, & Chung, 2006). These social resources enable the group and individuals within the group to perform effectively and achieve personal satisfaction.

1. Accumulating social capital with internal bonding. Multiplexity, embeddedness, centrality, and density are four network characteristics associated with internal bonding. Researchers have examined the effects of each of these factors on social capital at the level of individual participant in the network and the network itself. Researchers examining centrality at the level of the individual measure how many links there are between an individual participant in the network and other people in that network. In examining the centrality at the level of the network they measure how many links there are between a network and external individuals and networks. Most of the research has focused on individual participants, but it is important to recognize that individual network participants (egos and nodes) are embedded within networks that, in turn, are embedded within larger networks.

\* Multiplexity and embeddedness. Two nodes or persons in a network that are linked by means of only one type of exchange or interaction is called a uniplex relationship. When the same link occurs for two or more types of exchanges the link is a multiplex relationship. Although multiplexity could include any type of tie, usually the term refers to the overlap between a formal task or instrumental tie and an informal social or affective tie (LePine, Methot, Crawford & Buckman, 2012). Take, for example, two employees who are linked as the result of having to exchange task information and their friendship. A closely related term is embeddedness. The economic world cannot be entirely separated from the friends, family, national culture, and groups constituting the

social world (Granovetter, 1985a). Economic exchange in any society is embedded within the social networks and ties of the individuals. Mitchell and his colleagues used embeddedness to predict and understand why people leave their jobs (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). According to their analysis, to the extent that employees are embedded in both their organizations and their communities, they are less likely to leave. Multiplexity has a variety of beneficial effects on work outcomes and attitudes (LePine, et al, 2012). The richer set of interactions in a multiplex network allows for more effective gathering and processing of information and is especially beneficial when tasks are ambiguous or complex. Multiplex networks encourage employees to form shared cognitions and behaviors that allow them to coordinate their efforts in the performance of their tasks and engage in more effective teamwork. In addition, multiplexity increases trust in coworkers and satisfaction with the teamwork. In short, multiplexity is proposed to have a variety of beneficial consequences. Based on research showing these benefits, the recommendation has been made that organizations foster multiplexity in the relationships among employees with parties, relaxed break rooms, and casual Fridays (Methot, 2010).

\*Centrality in the social network. Another characteristic of individuals in a network and the network itself is the level of centrality. In the highly centralized network, affect, information, or behavior flow through the ego, whereas in a decentralized network they flow freely among members. The centrality of an ego is the extent to which the relationships among alters must pass through ego and is a function of the betweenness, degree, and closeness of the ego. In the diagram presented in figure 8.11, persons G, A, and E are the most central in the network whereas P, F, and D are the least central.

In the 1950s and 1960s social psychologists conducted many experiments in which they manipulated the nature of the communication network and examined the effects of centrality on group functioning (Shaw, 1964). Group members were placed in cubicles and different paths were arranged through which they could send messages. Of the five-person communication networks in figure 8.16, the most centralized are the Y-network and the Wheel. The most decentralized is the ComCom or All Channel network and the next most decentralized is the Circle. A consistent finding is that members of decentralized networks are more satisfied than members of centralized networks. The most satisfied members of the centralized networks are those in the central positions. The effects of the network on performance depend on the nature of the task. With simple tasks, in which the answers are obvious and the group only needs to pull together all the available information, the centralized networks performs better than the decentralized networks. In complex tasks, however, the central person tends to become overloaded with data and performance deteriorated. Consequently, decentralized networks tends to perform better than centralized networks on complex tasks. Although the research conducted with these configurations is quite artificial, the findings appear to support a general principle that holds across a variety of social and biological systems. The so-called Ashby's Law of Requisite Variety states that as the information in the environment becomes increasingly complex, the social system must also increase in complexity to process the information.

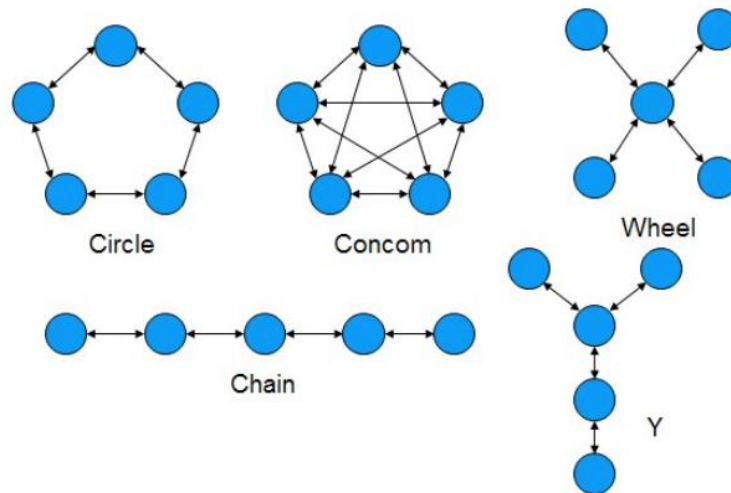


Figure 8.16: Communication Networks

At the level of the individual, centrality is the degree to which interactions with these others flow through the individual. There are two primary types of centrality. Betweenness centrality is the extent to which a person mediates between persons who are not directly connected. Brokers in a social network have higher between centrality than nonbrokers. Degree centrality is the extent to which all other persons in the network are connected to an individual and information flows through that individual. A person with high degree centrality, such as person A in Figure 8.11, is akin to the hub in a wheel with all spokes of the wheel connected to the hub. Persons in a central position in a social network accrue considerable social capital relative to persons in more peripheral positions. A meta-analysis of 37 studies of team performance shows that teams with leaders who are central in network interconnecting the team and other teams perform better (Balkundi & Harrison, 2006). Centrality is an important determinant of how much influence and leadership is wielded (Balkundi, Kilduff & Harrison, 2011; Brass, 1984; Ibarra & Andrews, 1993; Neubert & Taggar, 2004; Sparrowe & Liden, 2005; Kameda, Ohtsubo, & Takezawa, 1997; Mullen, Johnson & Salas, 1991b). Mossholder, Settoon, & Henagan, (2005) surveyed health workers in a medical center and report that employees with higher in-degree centrality are less likely to turnover. According to the authors, employees who are interconnected become more embedded in the organization and identify with their co-workers. “Such social grounding dampens the effect of real or perceived shocks that give rise to turnover” (p. 613). Centrality is also associated with higher performance evaluations (Ahuja, Galletta & Carley, 2003; Carboni & Ehrlich, 2013; Sparrowe, Liden, Wayne, & Kraimer, 2001), status (Venkataramani, Green, & Schleicher, 2010), knowledge sharing (Reinholt, Pedersen & Foss, 2011), citizenship behavior (Chung, Park, Moon, & Oh, 2011; Liu & Ipe, 2010; Settoon & Mossholder, 2002), and satisfaction (Mullen, Johnson & Salas, 1991b).

Although it is tempting to conclude that higher centrality is always better, there are limitations to the benefits of centrality. One needs to distinguish between centrality of individuals and centrality of the network to which individuals belong. The research shows that centrality of individuals is positively related to the performance of these

individuals but that the relation of the centrality of the team-to-team performance is moderated by the complexity of the tasks they perform. Although centrality of the individual's position in the network is positively related to the performance of that individual, the effects of centrality at the level of the group depends on the complexity of the tasks that are performed. There is also evidence that group performance is lower in more central networks when these groups perform complex tasks (Sparrowe, Liden, Wayne & Kraimer, 2001). Laboratory research in which communication networks are manipulated shows that performance is higher on complex tasks in decentralized compared to centralized networks but that on simple tasks performance is higher in decentralized than centralized networks (Shaw, 1964).

At the level of the individual, there is evidence of curvilinear relationship between centrality and performance. Extreme levels of centrality provide diminishing returns and can be harmful. A study of Italian academic scientists over an eight-year period shows that scientists who occupy central positions in the community and are linked to many other scientists outperform those scientists who are relatively isolated (Rotolo & Petruzzelli, 2012). However, there is a threshold of centrality beyond which scientific productivity declines. Being the central person in a network apparently can lead to information overload and consequently harm productivity.

\*Density and strong ties. Perhaps the most straightforward indicators of bonding are network density and strong ties. Density is the ratio of the actual number of links between nodes over the maximum number of possible links. Networks of interconnected individuals are called clusters or cliques and vary in the density of interconnections among individuals in the network. Networks having high levels of density are those with many interconnectedness among the nodes in the network. A closely related construct is cohesion which is discussed in the next chapter where it is defined as the affective bonding of a group member to fellow coworkers and their tasks.

Higher density networks have participants who are linked together through strong ties. Strong ties in a social network are links characterized by frequent interactions, emotional closeness, and a long history, whereas weak ties are characterized by infrequent interactions, formal relationships, and a short history. The strong ties associated with a dense network provide social capital that can increase the reliability of information within the network (Ibarra, 1995), the speed of information flow (Wong, 2008), expertise seeking (Yuan, Carboni & Ehrlich, 2014), generation of ideas (Kijkuit & Van den Ende, 2010), and the ability to absorb and adopt new ideas (Gilsing & Nooteboom, 2005; Reagans & McEvily, 2003). Increased density is also associated with a strong belief by participants in reciprocal obligation or the belief that favors from others will need to be reciprocated (Lin & Lo, 2015). Higher density is positively related to more interpersonal citizenship behaviors (Chung, Park, Moon & Oh, 2011), stronger identification with the group (Henttonen, Johanson, & Janhonen, 2014), and greater trust among network participants (Coleman, 1988). In contrast to high-density networks, low-density networks are prone to the formation of subgroups and cliques that can lead to fractures within the network, greater interpersonal conflict, and decreased trust. It is often the case that organizations aspire to acquiring strong ties as seen in the frequent use of family

metaphor. When corporate leaders state, “We are a family” they are stating an aspiration in which employees work hand-in-hand in the spirit of mutual admiration and devotion to the common cause.

Support for the benefits of density comes from a meta-analysis of thirty-seven studies of teams in which it was found that higher density teams perform better and are more viable (i.e., they more prone to stay together as a group as reflected in greater member satisfaction, cohesion, team commitment and a more positive group atmosphere) (Balkundi & Harrison, 2006). These effects are found for density with regard to both instrumental (i.e., work-related) and expressive (i.e., socioemotional or personal) ties. Also density of both instrumental and expressive ties is positively related to team viability although the relation with viability is stronger for expressive ties than for instrumental ties.

It would seem reasonable to expect that network density is also associated with the health and well-being of participants in a social network. Social support appears to buffer the adverse impact of work stress on employees (Viswesvaran, Sanchez, & Fisher, 1999). To the extent that high network density provides social support, one could expect that employees participating in these networks are less vulnerable to stressors in the workplace. It is easy to see how networks consisting of families and friends outside of work buffer the negative impact of work stressors as well (DeLongis, Capreol, Holtzman, O’Brien, & Campbell, 2004; Huynh, Xanthopoulou, & Winefield, 2013; Park & Fritz, 2015). People who participate in social networks are healthier than those who do not participate and the benefits appear to increase with the number of connections to other people. People also live longer if they are connected socially with other people and have frequent contacts with friends and family (Gilbert, Quinn, Goodman, Butler, & Wallace, 2013; Nyqvist, Pape, Pellfolk, Forsman, & Wahlbeck, 2014). Subjective well-being is associated with higher quantity and quality of social contacts with friends and family, but a stronger relation is found for quality (Pinquart & Sörensen (2000). Higher density of the social network in which a person is embedded is associated with higher life satisfaction, especially for those who value security and stress maintaining the status quo (Zou, Ingram & Higgins, 2015). Most of the research so far has dealt with nonwork participation in social networks but there is some evidence that higher network density at work also is related to more positive and less negative affect experienced as a consequence of one’s job (Totterdell, Wall, Holman, Diamond & Epitropaki, 2004),

Although network density appears to benefit both the network and individuals within the network, the consequences are not all positive. There is some evidence of an inverted U relation between network density and performance of individuals (Wise, 2014). Findings based on an analysis of over 7 million emails in a large international travel agency suggest that as density increases performance also increases up to a threshold and then declines after this point. Persons who value security and the status quo appear to benefit the most from high density networks, whereas those who valued moving beyond the status quo, taking risks, and improving their situations benefit more from low density networks (Zou, Ingram & Higgins, 2015). Because participants in high density networks trust each other more, these types of networks appear to encourage more malicious gossip

than low density networks (Grosser et al, 2010). Dense networks also may be conducive to the spread of unethical behavior within that network (Zuber, 2014). Higher density is both a cause of and an outcome of the levels of stress experienced by participants in a network. A network analysis of cadet communications in an elite military unit training camp reveals that cadets experiencing more stress maintain their existing communication ties and are less likely to form new ties (Kalish, Luria, Toker & Westman, 2015). This tendency to maintain existing ties perpetuate the stress leading to vicious cycles. The findings suggest that the smaller the network surrounding the cadet, the greater the increases in stress over time.

2. Accumulating social capital with internal and external bridging. The other major category of network features that is associated with the accumulation of social capital is bridging. Unlike bonding that closes the network to outside influences, bridging is the establishment of ties to external individuals and networks. As the result of opening the network to outside information, bridging is a potential source of innovation and creativity.

\*Guanxi. A concept that is similar to bridging is the Confucian notion of Guanxi in Chinese social philosophy. According to this belief system, order in a society depends on building relationships and connections among individuals. As a business practice, Guanxi consists of establishing relationships of the firm's management with the departments and officials in others businesses and the government. A meta-analysis involving fifty-three studies encompassing 20,212 organizations in China provides support for the beneficial effects of Guanxi (Luo, Huang, & Wang, 2012). The results show that establishing ties to business and government is related to higher organizational performance. Business ties have the largest effect on operational performance, whereas government ties have the largest effect on economic performance.

The network features associated with bridging that receive the most attention in the social network research are structural holes, weak ties, and brokerage. All three features are associated with the performance of a social network and the individual participants in that network. Although the effects reported in the research seem are sometimes contrary to what commonsense might suggest, all three play an important role in the accumulation of social capital and are important to the effectiveness of the social network.

\*Weak ties. Researchers have conducted a lot of research on strength of the ties connecting people in a social network (e.g., Perry-Smith, 2006, 2014). Examples of strong ties are close friends or employees with robust and durable working relationships. Weak ties are mere acquaintances or people who are only indirectly related via others. The friends of one's friends are examples of weak ties. Strong ties tend to constrain the individual in the sense that if interactions are limited to strong ties then there is little new information that can come from these interactions. If an individual has three close friends and all interactions are with these three friends, the person is unlikely to learn much new beyond what is gleaned from these three individuals. Among close friends, what one friend knows the other also knows. Weak ties impose fewer constraints and allow the individual to acquire novel or new information. Stronger ties occur as the result of



emotional intensity, frequency, length, intimacy, reciprocity, or multiplexity (e.g., work and friendship rather than only work or friendship).

In contrast to strong ties, weak ties are less frequent, emotionally distant, and have a shorter history. Although strong ties provide social and emotional support, when a work organization becomes a family characterized by strong ties it can have costs by insulating the organization and preventing the infusion of new ideas. In contrast, weak ties can provide bridges to outside people and provide exposure to fresh approaches and innovation.

Granovetter (1985b) provides the classic study of weak ties in an article appropriately titled “The strength of weak ties.” In a survey of people searching for employment, he asked respondents the extent to which they relied in their search for employment on strong ties in the form close friends and family (one’s Uncle Harry or best friend Charlie) as opposed to weak ties in the form of acquaintances (e.g., uncle Harry’s boss, or Albert, the roommate of the best friend of Charlie’s friend Ralph). Granovetter found that the more successful job hunters (defined as finding satisfying and higher paid employment) were more likely to cast a wide net that included a lot of weak ties in the form of mere acquaintances. Those who concentrated on their close ties were less successful. Using weak ties was a more effective strategy than using strong ties because weak ties provided more nonredundant information. Friends and family were likely to share similar, redundant information about the job market and going beyond these strong ties allowed the uncovering of information that was unknown to friends and family. Subsequent research has supported the strength of weak ties in hunting for jobs, although socioeconomic conditions, mobility patterns, and culture of the job hunter have been shown to moderate the effects (Oishi & Kesebir, 2012).

Despite the benefits of weak ties, investing in a relatively small set of deep friends is emotionally more rewarding than casting one’s net across a large group of mere acquaintances. The natural tendency for a person faced with a stressful situation such as unemployment is to draw social support from one’s closest friends. One should not infer from Granovetter’s findings that individuals faced with this type of situation should abandon close friends. However, the findings suggest that these individuals should go against natural inclinations to rely only on friends and family and instead broaden the social network to include more casual acquaintances. These shallow relationships do not provide the social support that would come from an inner circle of friends, but mere acquaintances can provide a wealth of information and lead to a more successful job search.

Weak ties also provide benefits to employees within an organization. Weak ties can pave the way to connections to those higher levels of the organization and in other functions (Seibert, Kraimer & Liden, 2001). In turn, connections to higher levels and other functions are associated with greater access to information. Connections to higher levels and other functions also are associated with obtaining more resources and career sponsorship. Finally, career sponsorship and access to resources are associated with higher salaries, promotions, and career satisfaction. Interestingly, structural holes go

hand-in-hand with weak ties in these effects. The more structural holes in the social network in which employees are embedded, the greater their career success (Seibert et al, 2001).

In addition to facilitating the performance of employees and their career success, weak ties also foster creativity and innovation. A social network dominated by strong ties is often a closed network that is resistant to new ideas. The focus is on maintaining relationships with current participants in the network and innovations are rejected as going against the “tried and true” methods of doing things. Weak ties with outside groups opens the network up and provides a cross-fertilization of ideas, thereby increasing innovation and creativity. A key factor is that whereas the information provided by strong ties (i.e., one’s close friends and associates) in a dense network is characterized by redundancy. In other words, the people to whom one is connected strongly tend to possess the same information. Weak ties provide more diverse information and this nonredundancy stimulates new, creative, and innovative approaches to problems (Hirst, Van Knippenberg, Zhou, Quintane & Zhu, 2015).

There are diminishing returns for the number of weak and indirect ties in a social network such that creativity increases as the number of weak ties increases up to a threshold and then declines past this point (Baer, 2010; Zhou, Shin, Brass, Choi, & Zhang, 2009). In a survey conducted in a large global, agricultural processing firm respondents were asked to list the names of people inside and outside the firm that had provided them over the last year with new information or insights into work-related issues (Baer, 2010). After generating these names, they then rated each relationship on whether it represented an acquaintance, a distant colleague, a friendly colleague, a close colleague, or a very close colleague. They also rated the length of time the relationship had been in existence and the frequency of interactions. In addition, each participant’s openness to experience was measured with a big five personality scale. Supervisors rated the creativity of each employee. In the networks of a moderate size, employees who had open personalities and were participants in networks with weak and more diverse ties were more creative than employees in networks with strong ties and less diverse ties. The authors suggest that creativity increases with increased number of weak ties by connecting the employees to colleagues within and outside organization and increasing access to new information. However, an inverted U-relationship also suggests that creativity increases with the number of weak ties up a threshold and then appear to decline. In an explanation of why creativity might decline at very high numbers of weak ties, Zhou et al (2009) suggest the information overload is a potential cause. Creativity increases with the number of weak ties but when the number of ties becomes too large, the individual may have difficulty managing and maintaining the connections.

**\*Structural holes.** In networks with “structural holes” not all nodes interact with all other nodes within the network. To state this in another way, structural holes exist when an ego person is connected with alters but not all the alters are connected. In the example of a network that was presented in figure 8.11, structural holes are found in the relationships of B and G, G and F, F and E, E and D, O and I, and G and H. If all persons in this network are interconnected directly with all other persons in the network, there are no

structural holes and no need for bridges to connect disconnected nodes. Bridging becomes necessary to connect participants who are not connected and thus fill the gaps or holes in the network. The total absence of structural holes is rare except in the smallest and most intimate of social networks. In a close-knit group of friends or a family every member may relate equally to all other members but in the typical organization there are many structural holes. The idea of a “hole” seems negative. After all, a bucket with a hole leaks, and a hole in the head is fatal. In the context of social networks, however, a structural hole is an opportunity that comes at some cost.

Networks with many “structural holes” are often hypothesized to be more creative and innovative than those with few structural holes, and egos having more structural holes in their relationships are also hypothesized to achieve more career success than egos with fewer holes (Seibert, Kraimer, & Liden, 2001). The results of a study of middle level managers in a Scandinavian telecommunications service provider suggests that managers in networks with more structural holes perform better than those with fewer holes because of the heterogeneity of knowledge they possess and the stimulation of creativity and innovativeness (Rodan, 2010). Individuals serving as agent of change in an organization also benefit from structural holes, especially if they are attempting to shake the organization loose from set and established ways of doing things. A study of the National Health Service in the United Kingdom reports that the initiation and adoption of changes by change agents are facilitated by a high number of structural holes if these changes deviate from the status quo but are hindered if they are consistent with the status quo (Battilana & Casciaro, 2012). Proposed changes that are divergent from the status quo are typically resisted but structural holes encourage the infusion of new ideas to counter this resistance. A network with structural holes also allow the change agents flexibility in adjusting their arguments for radical change to different groups. However, when the changes are consistent with established ways of doing things in the organization and do not need to be sold, change agents are more effective in a tightly woven network of relationships with few structural holes

The advantages of networks with structural holes seem more likely in an individualistic culture than a collectivistic culture. The findings from study of high technology Chinese firms reveal that employees whose ties to others in the social network contain more structural holes (i.e., they are connected to other people who are not themselves connected) have lower salaries and bonuses and are less satisfied (Xiao & Tsui, 2007). These effects are more pronounced for organizations with a strong commitment to employees (e.g., promotion from within, hesitation to fire, team rather than individual appraisal of performance). Whether these negative effects of structural holes generalize to other firms in collectivistic countries is uncertain and requires additional research.

\*Brokerage and betweenness. Structural holes provide an opportunity in that individuals who are strategically connected to others in the network are unconnected can act to connect these unconnected persons. These individuals are called brokers and the extent to which there are brokers is called brokerage. High network brokerage is characterized by third parties that provide a conduit either in the form of direct contacts between the broker and other people in the network or indirect contacts between the broker and the

other people. In figure 8.11, person A is highly central and directly mediates the relationships among B, C, E, F, and G and indirectly several other relationships among persons in the network. Not as central is J who directly mediates the relationships among K, L, and M and indirectly mediates several other relationships. The betweenness of A is larger than the betweenness of J in this network.

The research has explored the correlates of brokerage at the network level by examining the prevalence of brokers in the network and at the individual level by examining the impact of serving as a broker on the individual in this role. The research suggests that networks that have disconnected participants and participants who are willing to serve as brokers and close the gaps have social capital that can enhance the effectiveness of the network.

Brokerage occurs when some or all of the alters within a network are not directly connected and is a property of both the network as a whole and individuals within that network. To the extent that there are holes within the network and some of the alters lack a direct connection, individuals in that network can potentially act as brokers. The number of unconnected alters defines the potential for brokerage. The most decentralized networks are those with high density and participants are connected to every other participant in the network. Such a network has no need for brokerage. To the extent there are structural holes, brokerage is essential to the effectiveness of the network. In a highly centralized network where none of the alters are connected and all contact among the alters must go through central participant, the central person is essential to the effectiveness of the network that this individual serve as the broker.

Brokers are crucial in a network characterized by diverse individuals who do not normally interact with one another. In these types of networks, brokers can help build cohesion and take advantage of the diversity of approaches and ideas available to the network. Brokers also can help coordinate relations between groups as well relations among individuals within the group. This coordination is often critical when the group is under threat and must respond rapidly and efficiently to deal with the threat. Brokers are also ambassadors and can assist in providing insight into the norms and values of other individuals and groups, thus helping to avoid misunderstanding.

Individuals who have the opportunity to serve as brokers and who assume this role benefit in a variety of ways. Brokers in a network are higher paid, receive more positive performance evaluations, generate more good ideas, are more likely to be promoted, and are more likely to have these ideas accepted by others in the network (Burt, 2004; Mehra, Kilduff & Brass, 2001; Rodan, 2010). For example, Burt (2004) studied 673 managers of a large American electronics corporation. Managers engaging in more conversations with employees outside their immediate group received higher evaluations, were better paid, and were more likely to be promoted. Networks with leaders having high betweenness centrality tend to have followers who generate more novel ideas (Venkataramani, Richter & Clarke, 2014). In contrast, restricting attention to one's own group has the effect of reducing creativity and limiting opportunities.

There are downsides to serving as a broker in a social network. The findings of one study shows that employees in brokerage positions in social network brokerage positions are more likely to overestimate the extent to which others agreed with them on ethical issues, (Flynn & Wiltermuth, 2010). This inflated sense of similarity may render persons who are brokers more vulnerable to ethical violations. Because they find themselves in the crossfire of conflicting groups or individuals, serving as a broker is often stressful (Carboni & Gilman, 2012).

Points to ponder:

1. What is social capital? How is it similar to monetary and material capital and does it differ?
2. To continue with the somewhat peculiar set of terms associated with social network analysis, define each of these terms and relate each to the concept of social capital:
  - a. multiplexity
  - b. centrality
  - c. embeddedness
  - d. density
  - e. Guanxi
  - f. weak and strong ties
  - g. structural holes
  - h. brokerage
  - i. betweenness
3. Social capital can exist at the organizational level and at the individual level. How would you attempt to build the social capital of a group or organization? Assume you are the manager and can take action to increase social capital.
4. Now think about your personal social capital. In light of the research, what could you do to improve your own personal social capital.

## Socialization

If a social system is to act as an organization and work effectively to achieve its goals, the individuals who join the organization cannot simply “do their own thing.” These individuals must in some sense change from the way they were prior to joining and conform to the accepted ways of doing things in the organization. They must learn to fit into the organization. The process by which individual adapts to the organization by assimilating the norms, values, roles, and other patterns of behavior, feeling, and thinking characteristic of the organization’s ways of doing things is called socialization. It consists of events that teach employees and processes by which employees learn how to become an organizational player. Employee training is the formal means that organizations use to instruct newcomers in how they are to behave, feel, and think. Training is the topic of an entire chapter later in this text. In this chapter the focus is on the informal, emergent socialization. It is a process but becomes a structural element to the extent that there are recurring practices employed to socialize newcomers.

## Outcomes of socialization

There are several potential outcomes of organizational socialization processes. The most obvious and visible outcomes are new ways of behaving (Schein, 1971). Less obvious are the organizational values, which are the beliefs and ideals shared by employees about what is appropriate, good, and bad. A third category consists of new relationships, including how to interact with peers, supervisors, customers, and others with whom the employee must work. In some organizations, the employee must learn to give up old relationships and adopt new ones. For instance, an employee who was a coworker in a previous job may need to learn how to relate to this same person as a boss in the new job. In total institutions, such as might be found in a cult group, participants are required to give up family and friends and relate only to persons in the new group (Etzioni, 1964). The outcome that is perhaps the most interesting and most resistant to change is the incorporation of new self-concepts, i.e., new ways of perceiving one's self. Strong organizational cultures may succeed in changing employee self-concept so that they identify themselves as employees of that organization with all the values, norms, and beliefs considered consistent with that culture. In the case of self-concepts, values, behaviors, and relationships one can distinguish among those that are pivotal and the employee must adopt to become an accepted and effective member of the organization, those that are relevant and desirable but not absolutely necessary, and those that are peripheral and discretionary (Schein, 1971).

## Anticipatory socialization

It is important to recognize that socialization occurs before, during, and after entry into the organization. Before the employee is selected by the organization or joins the ranks of other employees, there is anticipatory socialization. Most new hires will possess beliefs, values, self-concepts, and ways of doing things before they become an employee or even consider taking a job in that organization. Much of this anticipatory socialization occurs in early education. For instance, physicians learn to think and act like doctors long before they actually start practicing medicine. Similarly, employees in a variety of other occupations begin their socialization to the occupation in pre-college, college, and graduate schooling.

Play activities in childhood and youth provide another source of anticipatory socialization. Young men and women who become soldiers and make a career of the military begin the process of becoming a soldier in their youth when they engage in video games or play soldier in the backyard. Socialization to the health professions occurs when children play nurse and doctor. Anticipatory socialization also occurs through books, movies, and TV. By the time an employee joins an organization and performs a particular job, he or she will have read and seen thousands of depictions of different types of work and organizations. The work experiences of the employee prior to joining the organization provide still another type of anticipatory socialization. It is common for employers to require some previous work experience as a precondition of employment because prior experience is believed to prepare the employee for the job for which he or she is hired. This prior preparation not only includes specific job skills but also the

attitudes and values seen as necessary to perform the job and the general skills of holding a job. Employers expect an employee to dress appropriately, come to work and leave on time, practice personal hygiene, and assume a courteous, business like demeanor. Having held previous jobs is some indication that the applicant already has mastered these very rudimentary work skills. A survey comparing inexperienced neophyte newcomers and veteran newcomers reports that new hires with more prior work experience are more likely to stay with the organization (Carr, Pearson, Vest & Boyar, 2006). It appears that veteran newcomers (i.e., those with prior work experience) are more likely to enter the organization with the beliefs, values, and job expectations of the organization. By contrast, neophyte newcomers appear to leave because they do not experience the anticipatory socialization that instills these beliefs, values, and job expectations.

### The initial encounter

The initial encounter with the organization appears crucial to the successful socialization of employees. Kurt Lewin (1947) theorized that change requires first unfreezing the individual from pre-existing attitudes and behaviors, changing the individual in the sense of inducing him or her to exhibit these attitudes and behavior, and then refreezing via the internalization by the individual of these attitudes and behaviors. The crossing of an organizational boundary opens opportunities for unfreezing such as when a new hire comes on board or when a current employee is promoted or experiences a lateral transfer. In extreme cases of unfreezing, an organization may subject a new hire to debasement and humiliation in the attempt to get the new hire to give up old identities, behaviors, values, and relationships and adopt new ones. Even in the absence of such extreme and unethical socialization, newcomers inevitably experience some degree of shock as they encounter new work situations. This initial shock provides leverage for change.

### Socialization tactics

Van Maanen (1978) proposes that there are six bipolar dimension socialization tactics with opposing tactics anchoring the ends of each dimension.

1. Formal (vs. informal): In the most formal socialization, newcomers are physically segregated from veterans and are trained in the formal role for which they were hired. A later chapter will discuss formal training programs and the various methods used in these programs. Formal socialization can target specific tasks to be performed by the newcomer. Also included in formal socialization are orientation programs that inform new employees of other things they should know such as company rules, key players, parking, benefits, payroll, and a variety of other topics. On the informal end of the continuum, newcomers are left to sink or swim and learn through their contacts with veterans. This is called on-the-job training in the training chapter. Whereas formal socialization informs employees about what management defines as appropriate thinking, feeling, and behaving, informal socialization deviates from what is officially recognized. Also, as noted by Van Maanen (1978), newcomers typically first encounter formal socialization but once on the job also encounter informal socialization.

2. Individual (vs. collective): Van Maanen (1978) considered this the most important socialization process distinction. Collective socialization involves grouping newcomers and exposing them to a common set of learning experiences, whereas individual socialization involves breaking in individual employees isolated from their cohort of new hires. An example of individual socialization is the typical apprenticeship program in which a new hire is assigned to a veteran employee who is responsible for teaching job skills. An example of collective socialization is the military boot camp where a group of new recruits live together and encounter the same experiences. In collective socialization the experiences facing the group of new hires force them to work together. In the process they learn new relationships, identities, values, and behaviors. The danger of collective socialization is that the group departs from what management wishes them to learn and resist the official company line. When the focus is on the individual, the outcome of the socialization varies to a greater extent than when the effort is collective and members fall in line with group norms.

3. Sequential (vs. random or nonsequential) socialization: In sequential socialization there are clearly discernable steps or phases through which the new hire must progress before graduating. An example is medical school education. Medical students start with in-class instruction and then are assigned to internship experiences and a residency in a hospital. Another is police training. Police cadets are first instructed in the classroom and then participate in physical conditioning and firearm training. Finally, they are assigned to a veteran policeman for on-the-street experience. In nonsequential socialization there is no attempt to prepare a person for the ultimate position through intermediate phasing, such as when a faculty person is hired and on day one is expected to teach, do research, and engage in service activities.

4. Fixed (vs. variable) socialization: Fixed socialization provides a timetable so that the trainee knows when and how a particular step in the process is completed. An example is the typical progression of students from grades 1 through 12 or from freshman to senior. There is a clear understanding of the end point in the educational process at each step. By contrast, a variable socialization process does not contain a standardized timetable. One example is if a new hire is told that at some indeterminate point in the future a decision will be made as to whether he or she is ready for a job assignment. Another example is when new hires are told only the minimum time to complete the training phase. University faculty who are on a typical tenure track experience fixed socialization before they are tenured. Afterwards they experience variable socialization. Typically, new faculty must go up for promotion and tenure within seven years and if they do not succeed are terminated from their positions. After they are promoted to assistant professor, promotion to the associate and full professor ranks does not follow a timetable and depends to a large degree on whether the faculty person and his or her peers think the time is right. In most large corporations, socialization of managers is for the most part variable in that there is no timetable for the preparation and promotion to higher ranks. Employees are left to figure out how well they are progressing often through the grapevine and reading between the lines in their conversations with superiors.



5. Serial (vs. disjunctive): In serial socialization the newcomer follows in the footsteps of veterans in similar roles who serve as role models. In some universities, seniors and other upper class students guide the newcomers in the socialization process. They socialize not only by instructing the newcomer in how to act but also by serving as models. The newcomer observes and imitates them and thereby acquires the values, behaviors, relationships, and self-concepts expected of a participant in the organization. The author experienced serial socialization as a graduate student when more senior graduate students met with new graduate students to set them straight on a variety of ways of surviving in graduate school. Some of these more senior graduate students were role models whose values and behaviors were modeled by the new graduates seeking to emulate their success. In disjunctive socialization there is a danger that the new hire will lack any sense of history in the organization and will have to invest considerable effort in figuring out what is appropriate and inappropriate. The upside is that disjunctive socialization opens the door to shaking up the organization and encouraging innovation. The potential downside of serial socialization is conflict between newcomers and veterans. On the one hand, veterans may haze or go out of their way to make life miserable for new hires. On the other hand, new hires may view veterans as dead weight and passé.

6. Investiture (vs. divestiture): In investiture socialization, there is an affirmation of a newcomer's incoming identity and attributes, as when a person is hired for her expertise. No attempt is made to diminish the attributes of the newcomer. To the contrary, new hires may be recognized and rewarded for the talent and experience that they bring to the organization. Divestiture requires an abandonment of previous identities, behaviors, relationships, and values; socialization tactics are focused on encouraging or even forcing this abandonment. Examples of divestiture include prisons, the Marine Corps, and religious cults. In all three there is a stripping away of previous ties. In the case of prisons and the Marine Corps there is a literal stripping as the clothes and hair of the newcomer are taken away along with other possessions that might remind the individual of their previous life. At the same time that the initial encounter with the organization using divestiture may consist of humiliating experiences, there is also an attempt to surround the new hire with social support and impress on the new hire the status of the organization. Successful socialization is seen as a means of achieving higher status and basking in the glory of the organization (e.g., the "proud and the few" of the Marine Corps). The role of investiture in institutionalized socialization has been contested with some suggesting that the use of investiture will discourage role innovation (Jones, 1986) whereas others argue that it will encourage role innovation (Van Maanen & Schein, 1979).

The findings of research on socialization have shown that the scheme presented by Van Maanen (1978) is reducible to fewer dimensions. Jones (1986) found that the collective, formal, sequential, fixed, serial, and investiture ends of the continuum form a cluster that he termed institutionalized socialization. Institutionalized socialization represents a more or less formalized developmental program for newcomers that suggests facilitates adjustment. On the other hand, the opposite poles—individual, informal, random, variable, disjunctive, and divestiture - are individualized socialization tactics in which newcomers are left to their own devices. Jones (1986) argued that individualized

socialization can encourage role innovation but is also likely to hinder adjustment to the organization by creating a sense of abandonment and role ambiguity. Another distinction among the six socialization tactics is between content tactics (sequential-random, fixed – variable), social tactics (serial-disjunctive, investiture-divestiture), and context tactics (collective – individual, formal – informal).

#### Meta-analyses of the effects of socialization tactics

A meta-analysis of the relationships between the six socialization tactics and various indicators of newcomer adjustment provides support for the efficacy of these tactics (Saks, Uggerslev, & Fassina, 2007). Consistent with Jones (1986), institutionalized socialization are associated with reduced role ambiguity, role conflict, and intentions to quit, and increases job satisfaction, organizational commitment, job performance, fit perceptions, and a custodial role orientation. Serial and investiture are the strongest predictors of adjustment outcomes and are both positively related to adjustment. Role conflict, role ambiguity, and fit perceptions partially mediate the relationships. Social tactics (serial and investiture) are the most strongly related to the adjustment outcomes. Moreover, with the exception of job performance and fit perceptions, the weakest relationships for all measures of adjustment are for those tactics concerned with context (i.e., collective and formal). The results also indicate that the relationships between the tactics and outcomes are stronger for recent graduates compared to other newcomers.

A second meta-analysis reveals other effects of socialization tactics based on seventy unique samples of newcomers (Bauer, Bodner, Erdogan, Truxillo, & Tucker, 2007). The results generally support a model in which the use of the socialization tactics increase job satisfaction, organizational commitment, job performance, intentions to remain with the organization, and turnover. Role clarity, self-efficacy, and social acceptance (feeling accepted by coworkers) partially mediated the effects of the tactics. Social acceptance is related to all outcomes, self-efficacy is related to all of the outcomes except job satisfaction and organizational commitment, and role clarity is related to all of the outcomes except turnover.

#### Conformity, rebellion, creative individualism, and cooptation

So far one might conclude that the more socialization, the better off the organization. This is naïve and potentially dangerous position. Socialization is a two-way street. Not only is the organization shaping the individual employee but also the individual employee is influencing the organization. New hires are an opportunity for renewal and innovation but if socialization processes go too far, the organization stagnates. In describing reactions to socialization processes, Schein (1968) proposes a continuum with rebellion on one end, conformity on the other, and creative individualism in the middle. In conformity the individual totally adopts the values, behaviors, relationships, and self-images that are the target of socialization attempts. Most importantly, they not only incorporate what is pivotal and relevant, but also buy into what is peripheral in importance to the organization. At the extreme, the individual becomes what Whyte (1956) called “the organization man.” Such persons define themselves in

terms of the organization and the roles that they occupy. They do not question the actions that constitute their role even when they are expected to violate moral standards or even violate the law. They are totally absorbed in the role perhaps at the cost of their nonwork roles as parent, spouse, or friend. Such total conformity is healthy for neither the organization nor the individual. Neither is the other extreme, rebellion. Here the individual fights against socialization attempts, perhaps exhibiting what was called anti-conformity earlier in this chapter. On occasion, a contrarian approach might benefit the organization but more likely the individual is dismissed.

Another possible reaction is that the organization will coopt those who rebel by assigning them to attractive roles that seduce them into accepting the values, behaviors, relationships, and self-images that they previously rejected. In a classic study that demonstrated how this might occur, employees who aligned themselves with the values and attitudes endorsed by the labor union were promoted to supervisory positions (Lieberman, 1956). They were found to change to align themselves with the values and attitudes endorsed by management. Interestingly, these same individuals reverted to their original values and attitudes when they were moved back to non-supervisory positions. Schein (1968) proposes that creative individualism is the preferred outcome of socialization. Here the individual accepts and adopts all of what is pivotal and essential to performing the role and some of what is relevant, i.e., important but not essential. However, the individual rejects much of what is in the relevant and peripheral domains. The creative individualist negotiates in a sense with the organization, buying into some of what the organization attempts to inculcate but also influencing the organization to move in a different direction on some other issues. The creative individualist retains his or her sense of self and at the same time opens the organization up to fresh ideas and approaches.

### The Interplay of Imposed Formal Structures and Emergent Informal Structures

As stated in an earlier chapter, organizational theory has evolved from earlier views that demonized informal structures to more modern views that stress the need to integrate the formal and informal. The classical organizational theorists that were discussed in the first chapter, such as Max Weber and Henri Fayol, feared that informal structures would damage the effectiveness of the organization. In particular, they asserted that allowing informal relationships in the form of friendships to enter into working relationships would bias judgments and the allocation of resources. Their fears about employees putting self-interests and the interests of friends ahead of organizational interests were well founded, but they ignored the potential benefits of friendship and trust. Friendship can detract from the objectivity needed to make decisions and can lead to unfair allocation of resources; it can also provide a safe environment in which employees take risks, freely exchange information, and willingly comply with pivotal organizational objectives. Similarly, allowing employees the autonomy to assert their individuality can promote flexibility and innovation whereas a total assimilation of the values and identity promoted by the organization runs the risk of rigidity and stagnation.

The emergent informal structures discussed in this chapter can complement, conflict, or overlap with the formal structures imposed by management. Formal structures usually provide the groundwork and a beginning point, but they are never enough. Informal structures are needed to compensate for failures in the formal design of the organization (Soda & Zaheer, 2012). Informal structures are more likely to benefit the organization if they are congruent to some extent, rather than totally at odds, with the formal structure (Mehra, Kilduff, & Brass, 2001; Oh, Chung & Labianca, 2004; Sparrowe, Liden, Wayne & Kraimer, 2001). One example of the problems associated with discrepancies between the informal and formal is when those in authority are not trusted. Findings from a study of small start-up organizations in the late 1990s indicate that employees are more likely to identify with their organizations to the extent that is a tight coupling of the friendship and trust networks with the formal authority networks (Kuipers, 2009). In this study, tight coupling is defined as employees who are formally linked in the organizational design who also consider each other to be friends and trustworthy.

Another example of the negative consequences of incompatible formal and informal structures is when the officially stated core values and corporate identity are discrepant from the values and identities that emerge in an organization. If the company claims an identity in which the customer comes first, they need to make sure that employees also perceive customer service as important to the corporate identity. When the public identity is at odds with the perception of employees, the performance of the organization can suffer (Davies, Chun & Kamins, 2010). Especially memorable and damaging is when management is caught violating central traits in an organizational identity. Most major corporations lay claim to honesty as central attribute in the identity that they project to employees and other stakeholders. If they are caught lying, stealing, and committing other immoral and illegal acts, great damage is done not only to the image but also to the company's financial performance. Also, gaps can occur between the image of the organization held by employees and those outside the organization such as customers (Davies & Chun, 2002; Verčič, & Verčič, 2007). If a company claims that meeting the needs of employees and creating a satisfying work environment are the top priorities, they need to make sure that the management of the company is consistent with these priorities (Davies, Chun & Kamins, 2010).

A primary message the reader should take away from this chapter is that the design of an organization should take into account and attempt to integrate the formal and the informal (Soda & Zaheer, 2012). One can compare organizational design to the design of walkways in a green space. In the planning of walk ways little thought is typically given to the paths that people actually will walk. As a consequence, and much to the chagrin of landscapers, footpaths appear that deviate from the "approved" paths set down in the formal design. The readers have no doubt encountered such informal, well-worn footpaths on the campuses of schools they have attended. In an attempt to prevent the destruction of the grass, signs may have been put up to keep off the grass and stay on the sidewalks. These signs probably had little effect. Some pedestrians deviated from the formal paths because they desired a shorter or more desirable path. Others may have deviated from the formal paths because they enjoyed breaking the rules. Similarly, informal structures represent pathways through the organization and emerge for a variety

of reasons. Rather than fight them or attempt to totally suppress them, a wiser approach is to seek a means of melding the better aspects of the two types of structures. The sociotechnical systems theory of organizations is discussed in the next chapter and is based on the notion that organizations are most effective when formal social and technical systems accommodate the informal social structures in an organization (Baxter & Sommerville, 2011; Pasmore, Francis, Haldemrman & Shani, 1982; Trist & Bamforth, 1951).

Points to ponder:

1. Think about groups and organizations to which you have belonged. Describe the types of socialization that occurred. How effective was the socialization to the group or organization?
2. Describe the major socialization tactics and what is known about their relative effectiveness based on the accumulated research.
3. Can an organization go too far in socializing its employees? Under what circumstances could socialization damage an organization's effectiveness?
4. Review the types of structures discussed in this chapter. Compare and contrast the formal and informal manifestations of each.
5. Consider how the management of an organization might attempt to integrate formal and informal structures. Describes ways in which this might occur.

Conclusions

The reality of organizational life is that people must work together to get things done. Some situations require more cooperation than others, but organizations and work units within these organizations are social systems that would not survive for long if employees were following their own individual paths. The previous chapter was concerned with the social processes, the continuing and ever changing ways in which individuals interact with one another. This chapter was concerned with social structure, the stable patterns of relationships that emerge from social processes. To make social life more bearable and to ensure that people work together in a coordinated and efficient manner, management imposes social structures. Emerging from these formal structures are informal structures.

The first of the structures discussed in this chapter was the *division of labor*. To thrive organizations must differentiate into separate parts each of which specializes in some aspect of the task and then integrate these different parts. At the level of the organization, employees are divided into units such as departments on the basis of the functions they perform, their position in the workflow, or the geographic or client base they serve. At the level of the employee, specialized tasks are assigned to individual workers. Social roles are a type of structure that also dictates the differentiations among activities of employees that emerge from the formal horizontal differentiation.

Once differentiated, integrative structures are needed to coordinate the activities of those occupying the separate roles and tasks. A formal means of accomplishing this integration

is in the power and status distribution. The formal organizational chart is typically a hierarchical, pyramidal structure in which the executives at the top of the pyramid have the most power and status and each successive level has somewhat less power and status. An informal distribution of power and status emerges that departs to some degree from the lines of command conveyed in the formal organizational chart. To bolster the lines of authority and further integrate employee activities, rules and procedures are devised that define how employees should go about their duties. The informal counterpart of these formal structures are social norms that emerge from interactions of employees and dictate how employees are to think, feel, and act. Some social norms conflict with formal rules whereas others may support these rules.

Rules and procedures require that the activities of employees are closely monitored and rewards and punishments are administered to shape these activities. This is a costly means of integrating the organization and may prove quite ineffective when flexibility and innovation are required. Ideally, the rules and procedures are internalized so that employees do not need continual close supervision and adapt quickly to changes. To achieve this deeper level of integration, management formally communicates the core values of the organization, the reasons for its existence, goals, and an organizational identity or image that they wish to project. Advertisements, the mission statement, the annual report, slogans, tee shirts, hats, and a variety of other formal vehicles are used in these communications to shareholders, employees, customers, competitors, regulators, and other stakeholders. Again, there is an informal counterpart to the formal organizational design and is contained in the organizational climate or culture that emerges and includes employees' shared perceptions of the organization. Social identities also may emerge that are shared by employees and that may or may not align with the formal organizational identity. Finally, the formal organizational design identifies the preferred flow of information and influence within the organization. For instance, in a strictly hierarchical organization, communications follow the chain of command and only deviate from this chain if there are formal links defined in the organizational chart. However, social networks emerge defining flows of information and influence that are seldom entirely consistent with the formal organizational design.

Individuals, networks, and organizations can accumulate social capital and those that do are more effective and satisfied than those who do not. But there can be "too much of a good thing" (Donaldson, 2001; Lechner et al. (2010). Weak ties can benefit creativity and innovation but in some cases, too many weak ties can overwhelm the individuals and groups attempting to manage these ties. Density can improve performance and well being but if too dense, a group may stagnate because of its resistance to outside ideas. Brokers and those in central nodes in a network benefit personally in many ways but can find themselves in stressful situations and may develop distorted ideas that could lead to unethical behavior.

This chapter has covered a variety of structures that provide stability to an organization. These include imposed formal structures and emergent social structures, including roles, power and status distributions, norms, culture/climate, shared social identities, and social networks. An essential attribute of a social structure, whether imposed or emergent, is

that it outlives the individual employees. People come and go but the norms, roles, and other structures continue. For this to occur, new employees in the organization are socialized to attend to, understand, and comply with these social structures.

A theme in this chapter is the potential conflict of the formal and the informal. The formal organization is defined by the organizational chart and consists of the collections of employees who are supposed to work together, the tasks that they are to perform, and who is assigned as boss with the authority to tell others what to do. By definition, management does not officially authorize the informal organization that emerges from the daily interactions of employees. An earlier chapter described how classical and scientific management theorists derided informal relationships as threats to organizational effectiveness. We now know that they are not only inevitable but serve a crucial function necessary to organizational effectiveness. Management can never organize so completely to eliminate all unexpected events. Informal relationships fill in the gaps that always exist in the rules, procedures, and reporting relationships defined in the formal organization. How well an organization functions and the satisfaction of its members are influenced by whether the informal organization is congruent with the formal organization. Network analysis is a tool that can enable management to identify the informal organization and determine whether there is a good fit between the formal and informal.

Changes currently underway in organizations show that it will become increasingly important to understand social structure and process. Organizations are moving away from the highly individualistic, authoritarian systems typical of the past toward structures that delegate important decisions to teams of workers. There are several potential reasons for the growing emphasis on social systems. More than a half-century of behavioral research has encouraged this trend. Another factor is the growing awareness of managers that single individuals cannot effectively cope with the technological, political, and cultural changes confronting organizations today (Galbraith, 1977). Still another factor is the elimination of managerial positions; this is a strategy that many large corporations are using to reduce costs in recent years and that is necessitating a greater reliance on self-governing teams. Whatever the reason, collaborative work arrangements are reshaping organizational life and will require that I/O psychologists devote more attention to social behavior in their research.

Of the various social entities in an organization, perhaps the most important are the groups in which employees work together to achieve work goals. Collections of people seldom perform up to their potential, but because they are a fact of life, management cannot ignore or attempt to prevent groups (as was suggested by Fred Taylor). Understanding why some groups form effective teams whereas others suffer process losses that prevent them from achieving organizational objectives is the topic of the next chapter.

## CHAPTER 9: GROUPS AND TEAMS IN ORGANIZATIONS





## Introduction

The movie Apollo 13 tells one of the most inspiring and thrilling stories from the history of manned space travel. On April 11, 1970, the Apollo 13 mission to the moon encountered a technical failure that could have left the three crew members stranded in space. A short circuit led to an explosion in an oxygen tank. As oxygen from the tank leaked into space, the crew and the mission control personnel back on the ground worked to diagnose and solve a series of problems. At mission control a Tiger Team was formed and led by the flight director Gene Kranz that and was tasked with finding the fastest way to get the crew back before the oxygen was depleted. Among the problems was devising a means of cleansing the air in the lunar module of carbon dioxide. As depicted in the movie, the materials available in the spacecraft were dumped on a table and from these materials the team was able to make a makeshift adapter using plastic from a garment bag, cardboard from reference manuals, duct tape, and a sock (<https://www.youtube.com/watch?v=egWvQuT5TCU>). Incredibly, they found solutions to this and other problems, and the crew survived. The success of the Tiger Team in saving the Apollo 13 crew was the result of the talent that members brought to the task, the leadership of the team, the way the team members interacted in solving the problems, and the coordination between the team, the Apollo 13 crew, and other teams within NASA.

The story of Apollo 13 is among the most vivid examples, but there are many other examples of the power of teamwork in science, business, education, sports, and other realms of life. Although great individuals are often given the credit for the success, typically there is a team that deserves much of the credit. For example, the use of the assembly line at Ford Motor Company was typically attributed to Henry Ford, but not only Ford but a team of engineers, developers, and supervisors were involved. The Mac team at Apple Inc. was led by Steven Jobs, but three years of work by a group of programmers, designers, and other technicians led to the creation of the first user friendly computer.

Groups define the organization's hierarchy with employees assigned to small work groups at the bottom of the hierarchy and into increasingly larger groups (i.e., departments, divisions) as we move up the hierarchy. These are the formal groups in the organization, but as seen in the discussion of the Hawthorne studies, social scientists have recognized that informal networks of groups exist in organizations and are often have more influence on employee attitudes and productivity than formal groups. This chapter covers the important processes that determine whether groups are effective or ineffective and what the leaders and members of these groups can do to ensure that they are efficient and productive in the performance of their tasks. The chapter begins by defining what "group" means and enumerating some of the essential antecedents of and characteristics of groups as well as reasons that people participate in groups. The differences between groups and teams are considered as well as a discussion of how groups develop over time and eventually decline and die. Following this is a consideration of the core of this chapter... the factors that determine whether a group is an effective team or is less successful in the performance of its tasks. Much of this discussion follows Hackman and

Morris's (1975) influential Input-Process-Outcome (IPO) schema. Over the last decade I/O psychologists have focused on a particular type of group in organizations - the team – and the chapter reviews some of the factors associated with effective and ineffective teamwork. The chapter concludes with some of the specific interventions for improving group effectiveness.

### What is a Group?

A group is a collection of people that can range in size from two people to a very large number. However, understanding the groups that affect the work that is performed in organizations and the attitudes and well-being of the members requires a definition that goes beyond mere collections of people. A group as defined in this chapter possesses four essential attributes. A group consists of two or more people (1) who interact with one another, (2) influence each other's behavior, feelings, and thinking in the process of these interactions, (3) share some common goals and interests, and (4) perceive themselves as a group. There are different types of groups within organizations and although the dynamics are common to all of them, there are also some substantial differences that deserve our attention. A fundamental distinction that one can make is between formal and informal work groups.



*A large collection of people does not necessarily constitute a group.*

### Formal work groups

Formal groups within an organization are formed by management and given a mission to fulfill and functions to perform. Several researchers have set forth work group typologies, but Devine (2002) provides one of the more comprehensive frameworks for distinguishing among the various types of formal groups. He distinguishes between groups involved in primarily physical tasks and those engaged in tasks that are primarily intellectual in nature (Devine, 2002). Within each of these two general categories, additional types of groups are identified.

## 1. Intellectual work teams

- a. Executive teams: Engaged in ambiguous but highly important tasks requiring the consideration of alternatives, decision making, and planning (e.g., a top level management team that decides on corporate strategy).
- b. Command teams: Monitor the environment and based on classification of situation, decide on appropriate actions by others over short periods of time. They often rely on sophisticated technology with members distributed geographically (e.g., a military command group that monitors enemy movements and decides on actions for field forces to take; another example would be a coaching team directing actions of a sports team).
- c. Commissions: Formed to address a specific issue or problem. They exist until the mission is accomplished at which point the members are disbanded or reassigned (e.g., a blue ribbon commission formed by the governor of a state to issue a report on crime).
- d. Design teams: Group formed to perform a task of a technical or creative nature. Members are disbanded or reassigned once the task is finished (e.g., team formed to create an advertisement for a new product).
- e. Advisory teams: Formed to address how to improve the effectiveness of an organization or subunit within that organization. They issue recommendations or a report and are often disbanded once the project is completed (e.g., a quality improvement team generates ideas for how to improve the efficiency with which a product is manufactured).

## 2. Physical work teams.

- a. Service teams: Group is responsible for meeting customer needs and improving service and tackle both routine service problems as well as non-routine problems. Usually work together on regular basis but teams may be reconstituted from a common pool of service employees (e.g., a team of software engineers address problems encountered by customers in using a program).
- b. Production teams: Group is engaged in manufacturing a tangible product following standardized procedures and using tools and machines (e.g., a group of workers producing an automobile on an assembly line)
- c. Performance teams: Employees who work together in a coordinated fashion to entertain an audience (e.g., a cast of actors perform a play).
- d. Medical teams: Professionals engaged in standardized and specialized activities aimed at protecting, improving, or maintaining the health of a patient (e.g., a surgical team consisting of physicians, technicians, and nurses).
- e. Response teams: People brought together in an emergency that they diagnose and then take action to provide rapid treatment of an injured party or some other intervention that deals with a threat (e.g., a crew of firefighters).
- f. Military teams: Small, formal groups of military personnel that use lethal force to restore order and maintain security (e.g., a combat platoon).
- g. Transportation teams: Employees operating specialized machine or vehicle to transport people from one location to another (e.g., an airplane crew).

How does a team differ from a group?

In recent years, researchers and theorists have tended to distinguish between work teams and other types of groups. A perusal of the I/O research literature on groups in organizations will show that the titles of the articles appearing in the journals more than two decades ago were mixed in their use of the terms group and team. In the last two decades, research on groups in organizations overwhelmingly uses the term teams even when the focus and nature of the research is identical to past studies using the term group instead of team. How does a team differ from a group? Teams have the characteristics of all other forms of groups such as having two or more members, who interact, have a common goal and are interdependent. In addition, the term “team” is usually reserved for those groups in which the members are brought together to perform organizationally relevant tasks, have specialized role duties, and are embedded within an organization (Kozlowski & Ilgen, 2006).

The somewhat rigid demarcation that researchers and theorists have imposed in recent years seems to reflect an attempt to link the work on groups to the popular literature on teams (e.g., Jones, 2002; Katzenbach & Smith, 2006; Lencioni, 2002; McChrystal, 2015). There is a tendency in the popular literature to use the sports or military team as a metaphor for all effective work groups. Effective teams are seen as sharing the intensity, emotion, and involvement of successful sports teams. These characteristics somehow set the effective team apart from other effective work groups. Even though business organizations have much to learn from sports and the military, there is a danger in carrying the metaphor too far. Another motivation for the use of the term “team” instead of group is to set apart the research on organizations from the social psychological research. Again, this distinction is not only unnecessary but potentially harmful in understanding work groups. The reader is referred back to chapter 2 where there was a discussion of the pros and cons of laboratory research and its relevance to understanding organizations. The reality is that the distinction between the two is quite blurred and is, in the opinion of the author, a false dichotomy. Consequently, this chapter uses the terms team and group interchangeably. Nevertheless, the reader should keep in mind that some others in the field do not share the reservations expressed here.



*The efforts of a group to coordinate their efforts is called a teamwork.*

## How Do Groups Change Over Time?

Ever been a member of a group that struggled to achieve its objectives at the beginning, and then, at some critical juncture, the group suddenly "clicked" as members learned to work together? Ever been part of a group that worked together beautifully for a time, but then eventually became so fixed in its ways that it declined in effectiveness? These experiences reflect the fact that social systems, like individuals, change over time. Several models have attempted to explain how groups develop over time, and the reader can no doubt think of a group experience that matches each of these models (Arrow, Poole, Henry, Wheelan, & Moreland, 2004).

### Model 1: Groups move through fixed stages

The best known and most widely cited of these models states that groups go through four phases (Tuckman, 1965). First, there is the forming phase as members get to know each other. Second, there is the storming phase as differences in orientation spawn struggles for leadership. Third, the group enters a norming stage as roles, norms, and other structural arrangements emerge and members acquire a clearer idea of what to expect of each other. Forming sets the stage for the performing phase in which members get down to the task at hand. The problem with the forming, storming, norming, and performing model is that it is based mostly on observations of therapy groups where people do not know each other in the beginning, the agenda is unstructured, and the goal is self-improvement. Groups that are formed to accomplish specific tasks within a defined time do not necessarily follow this pattern of development.

### Model 2: Group development cycles back and forth over tensions

Another model of group development suggests that groups cycle between two major tensions within groups - the egoistic concerns of members with their personal needs and the concerns for the group (Worchel, 1994). The group moves through no fewer than six potential phases, each characterized by a different tension. In the discontent phase, the group is unimportant to members and they feel somewhat disconnected from it. In the second, a precipitating event signals the need for cooperation and a renewed interest in the group. In the group identification phase, members form a strong group identity and differentiate between themselves and out-groups. This leads to the productivity phase in which the group engage in attempts to achieve the goals of the group. With success, the group enters into the individuation phase in which the individual needs of members become the focus of attention once more. Competition, conflict, and feelings of inequity emerge and the group decays.

### Model 3. Groups experience punctuated equilibrium

In groups that are formed to engage in specific tasks such as the typical work group in an organization, there is a beginning, a middle, and end to tasks. The development of the group is punctuated by the stage of task completion. The findings of one study of work

groups reveals a pattern of development called punctuated equilibrium (Gersick, 1988). In the first meeting of the group, assumptions and orientations emerged in the discussion that serve as a framework for the group's work for about the first half of its existence. Groups typically show little visible progress until about half way through the allotted calendar time. At that point, a crisis occurs in the life of the group in which members become acutely aware of the urgency to get on with the task. The midlife crisis provides an opportunity to rethink strategy and reinvigorate members, but can signal the beginning of the end for the group. Groups that are effective learn from and resolve the crisis and become more effective in their teamwork. Groups that fail to resolve the crisis perform less effectively may even dissolve as a group.

#### Model 4: Groups become more homogeneous and less creative

Another observation is that groups move through a life cycle in which they reach a peak and then decline. At the beginning group effectiveness steadily increases because of the energy and innovation of members. Just as individuals eventually suffer from age, in the later stages of development groups become more inflexible and lose some of their creative edge. In a field demonstration with project groups, productivity increased up to 3 - 5 years and declined thereafter (Katz, 1982; see 9.1). These downturns in performance were paralleled by downturns in communication among members within project groups, within organizations, and with external professionals. According to the researchers, as members work together they become more homogeneous in their task strategies, more resistant to new ideas, and increasingly isolated from outside information sources.

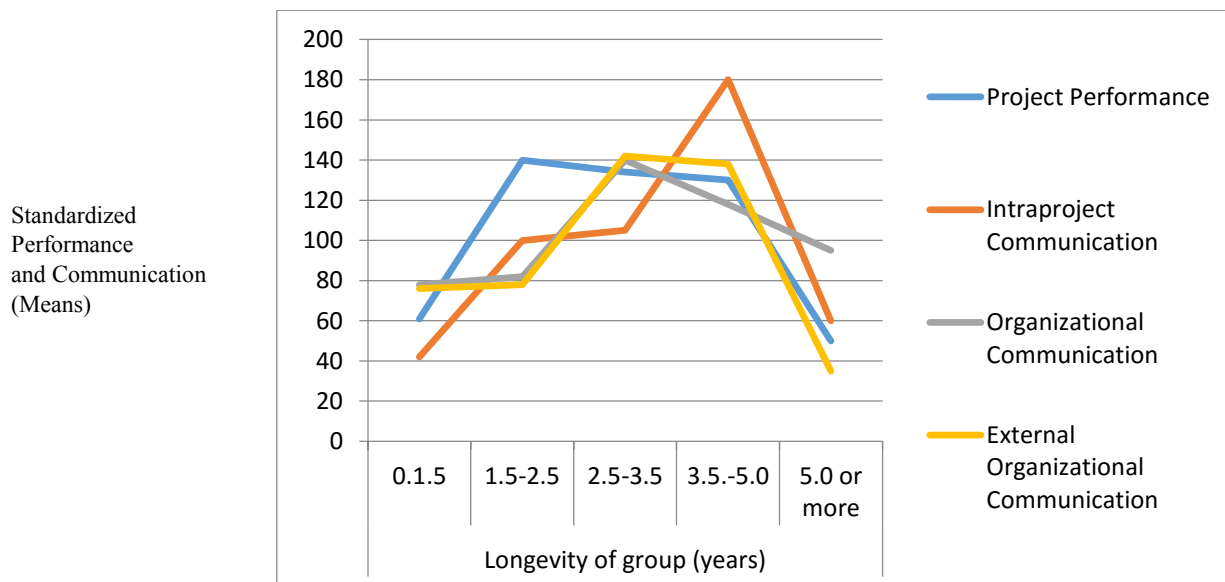


Figure 9.1: Group Performance and Communication as a Function of Longevity.

Most of what has been written about the development of groups is speculative and many questions remain. More research is needed on these fascinating issues before one can

conclude much about how groups develop and the impact of this development on performance. It is clear, however, that groups do change over time as their members interact. What occurs at each particular point in time is likely to depend on the tasks that members are performing and the nature of the group.

### Why Are Some Groups More Effective Than Others?

Groups differ in the effectiveness with which they perform their tasks. I/O scholars have proposed several models of team performance (e.g., Heinemann & Zeiss, 2002), but the most influential is Hackman and Morris's (1975) Input-Process Outcome model (IPO). A version of this model is shown in figure 9.2.

#### Group inputs

In the beginning a group consists of two or more members who are assigned tasks and possess characteristics (e.g., sex, race, age, functional areas, abilities, knowledge, skills, personalities, attitudes). Some groups have members who are highly similar on the personal characteristics of its members whereas other groups are characterized by diversity. Groups also vary in the number of people who serve as members. Member KSAOs, personalities, and attitudes, the degree of heterogeneity of group member characteristics, the number of group members, and the nature of the tasks members perform, serve as the raw materials or inputs to the group. In the model, the input variables affect group effectiveness as the result of the effects on group processes and emergent characteristics. Input variables also have a direct effect. All other things held constant, a collection of highly intelligent people is likely to perform better than a collection of less intelligent people. But the benefits of higher intelligence are most likely on tasks operating at a low level of interdependence such as when the output is based on a pooling of member performances. Here group effectiveness reflects mostly input variables. In contrast, group inputs are not as likely to predict the performance of a group performing a task requiring complex coordination among members. On these tasks, inputs influence outcomes mainly as a consequence of the influence on mediating events in the form of interaction processes and emergent structures.

#### Group interaction processes

As discussed in the previous chapter, social processes consist of all the interactions among members over the life of the group. Some processes are focused specifically on the performance of the group's tasks, whereas others are more socioemotional in nature and are concerned with personal feelings and relationships among members. The interaction processes that have received the most attention from researchers and that are the focus of this chapter are processes associated with influence, leadership, conflict, helping and cooperation, information sharing, transactive memory, group emotion, group motivation, and learning.

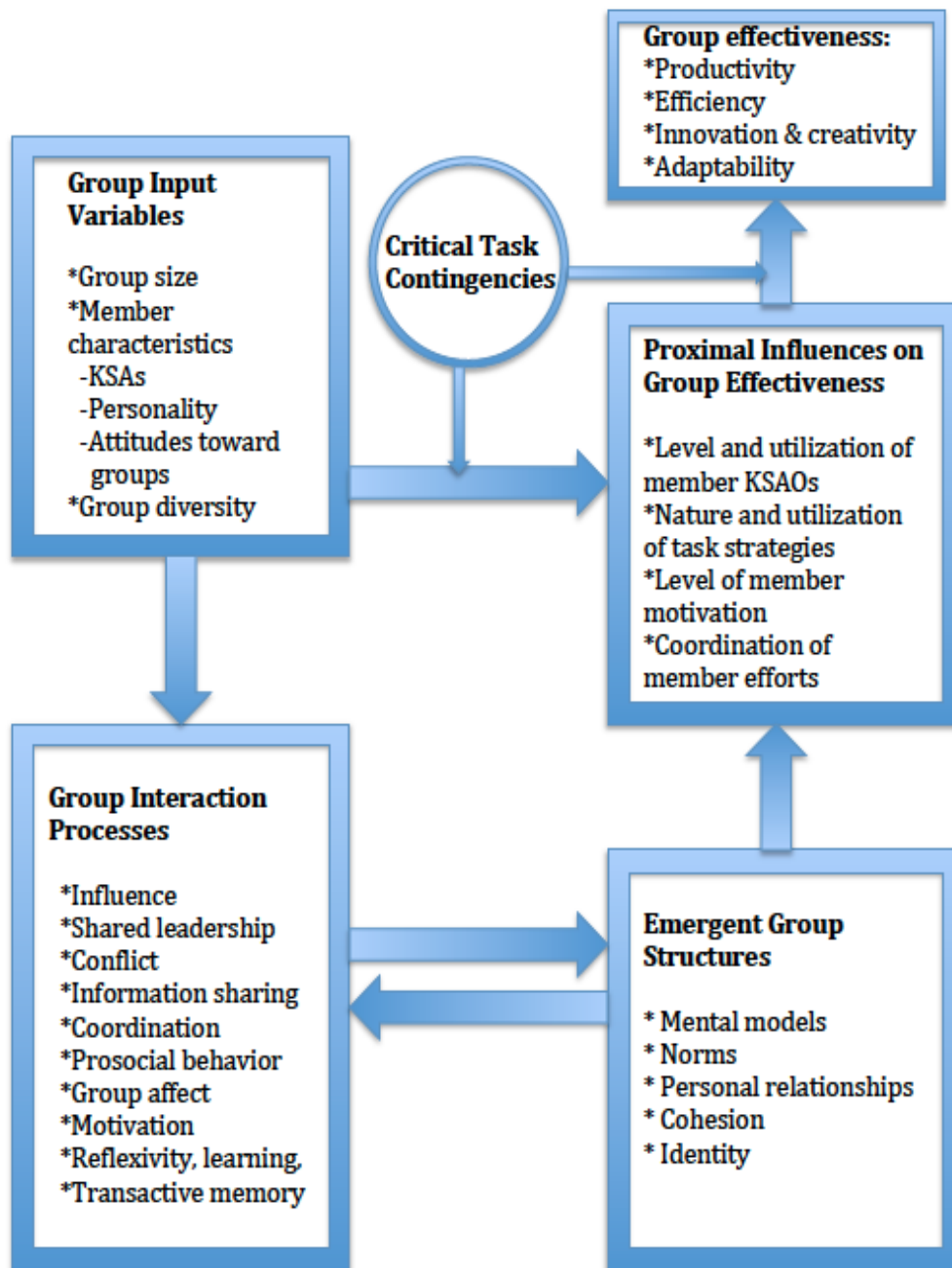


Figure 9.2: A Model of Group Performance



## Emergent group structures

Over time, stable patterns of thought, affect, and behavior emerge that provide stability to the group. These patterns reflect to some extent what the group learns as the most successful ways of dealing with their tasks. They also can reflect modes of thinking, feeling, and behaving that have become comfortable routines and have little to do with the effectiveness with which tasks are performed. The emergent structures reviewed in this chapter are cohesion, shared mental models, norms, and personal relationships. As noted in the model, interaction processes lead directly to emergent group structures and these structures then shape future interactions among members. As stable patterns of interaction emerge, interaction processes in a group become less varied and more constrained by the structures.

## Proximal influences on group effectiveness

Whether the group is effective or ineffective in the performance of tasks depends on the extent to which structures and processes allow members to deal with four key task issues.

Is the level of motivation appropriate to performance of the tasks? The members of the group show vigor and persistence in pursuit of goals appropriate to the task. The level of motivation required depends on the nature of the task.

Does the group have strategies that appropriate to the task? Members must generate task performance strategies appropriate to the task. Strategies in this case are collective choices by members about the best ways to perform their tasks.

Do members have the KSAs needed to perform the task? The group must possess the knowledge, skills and abilities (KSAs) crucial to task performance and then use them in an optimal manner.

Do members coordinate their activities in a manner appropriate to the task? Members must perform their separate activities in an organized manner so that they work together in a smooth and balanced manner.

## Group effectiveness

Groups are ultimately evaluated on how effective they are in performing the tasks that they are assigned. Effectiveness is measured in terms of sheer quantity of output (i.e. productivity), the efficiency with which the group uses resources to produce a unit of output, the extent to which they can generate creative solutions to problems, and their adaptability to changes in the environment. Which of these criteria is appropriate to evaluating the effectiveness of a group varies across groups, tasks, and organizations.

## Critical task contingencies

The effects of group input, interaction processes, emergent structures, and proximal influences on performance depend on the nature of the tasks performed by the group. A group may exhibit high levels of helping, sharing of information, motivation, and shared leadership, but if the task requires very little interaction and can perform well simply as

the result of individual efforts, none of this “good process” may count for much. In this instance, group interdependence is a critical task contingency.

The model depicted in the figure 9.2 is limited in that it ignores two very important characteristics of groups in organizations. First, groups in organizations in this model are treated as though they exist in isolation and are unaffected by external events. Contrary to this assumption, organizational groups are *open systems* that are embedded in a larger organizational system and subject to external factors that originate from within the organization and the environment of the organization. These external factors influence what goes on in the group and what the group needs to do to effectively perform its tasks. Second, the causal relationships among the variables in this model are treated as though they operate in a simple one-directional manner: (1) Inputs cause group interaction process; (2) Group interaction process cause changes in the summary variables; (3) Changes in the summary variables cause group effectiveness; (4) Task contingencies moderate the relations of summary variables to group effectiveness. These variables are reciprocally related. Inputs cause group interaction process and in turn, group interaction process cause the input variables. The group interaction processes cause the summary variables and the summary variables, in turn, cause the interaction processes. The summary variables cause effectiveness but group effectiveness, in turn, causes the summary variables and can loop back to influence input variables and interaction processes. Finally, group effectiveness, the summary variables, the group interaction processes, and the input variables influence the critical task contingences. Basically, everything in an actual organizational group influences everything else. Despite the complexity of real groups in organizations, it is still helpful in understanding groups in organizations to treat the variables with a simplistic model such as that proposed in the model. To treat groups as closed systems with unidirectional causality focuses attention on crucial leverages that are useful in improving the effectiveness of a group. Complex, open system models capture the actual confusion of real life but they seldom provide a useful guide to practical action.

Points to ponder:

1. Think of groups that you have belonged to that have achieved success as well as groups that have failed. What happened in each group that accounted for the success or failure? Try to identify the reasons for the performance of the group using the model presented in figure 9.2.
2. Describe the Hackman and Morris model of group effectiveness and apply it to groups in which you have participated or have observed.
3. What type of group is likely to conform to the forming, storming, norming, and performing model of group development? What is it about the group that accounts for this pattern?
4. Think back to groups that you observed that exhibited the punctuated equilibrium described by Gersick. Describe what happened and why.
5. Figure 9.1 depicts a pattern of group development that is sometimes observed. Here performance increases up to a point and then declines. What type of group is this most likely to occur and what could be done to avoid the ultimate decline?

6. What is meant by the statement that groups in organizations are open systems? Describe the implications of an open systems perspective on the management of organizational groups?

### Group Inputs

In putting together a formal group, the management of an organization must assign the tasks that the group perform and staff the group with people who perform the tasks. Likewise, the people who belong to the group and the tasks they perform shape informal group processes and outcomes. People and tasks serve as the crucial inputs to group process and outcomes and are important leverage points in attempts to improve group effectiveness.

How many members are needed?

A question frequently raised in discussions of group effectiveness is “What is the ideal number of members for a group to perform most effectively?” A common conclusion is that smaller groups are more effective than larger groups because of the negative effects of large group size on the interactions among members and their motivation (Lowry, Roberts, Romano, Cheney & Hightower, 2005). The potential ways in which the group can fracture into subgroups rapidly increases with increases in group size (Carton & Cummings, 2013). The number of subgroup configurations is only 3 for a 3-person group but rapidly increased to 13 for 4 persons, 50 for five persons, 201 for 6 persons, 875 for 7 persons, 4,138 for 8 persons, 21,145 for 9 persons, and 115,973 for a 10-person group. The increase in the number of potential relationships that a supervisor must manage as group size increases is mind boggling. Based on this observation, some of the early management theorists advocated a narrow or small span of control (i.e., a small number of subordinates reporting to any one supervisor), perhaps no more than five or six (Urwick, 1956). According to their reasoning, a supervisor must in addition to managing relationships with each individual subordinate, also manage relationships among the subordinates and various combinations of subordinates. There is only so much mental capacity in any one supervisor and in large groups the demands far outweigh the capacity.

So what does the research show with regard to the relation of group size and performance? The findings are quite mixed and there is little basis for declaring universal statements about the “ideal group size”. Consistent with those who advocate small group sizes, there is evidence that the efficiency of group performance as measured by productivity per member does indeed appear to plateau or even decline at larger group sizes (LePine & Dyne, 1998). These declines in efficiency are associated with process losses such as social loafing (Chidambaram, Price, & Tung, 2005), conflict (Valacich, Wheeler, Mennecke & Wachter, 1995), and production blocking (Gallupe, Cooper & Grise, 1994). Some research has shown a variety of negative group behaviors associated with large group sizes, including parasitism, interpersonal aggression, boastfulness, and misuse of resources (Aube, Rousseau & Tremblay, 2011). In contrast to this conclusion, others report that increases in group size are associated with higher group performance

(Magjuka & Baldwin, 1991; Yetton & Bottger, 1982). Still other researchers report that groups are most effective when they have enough members to perform the task but not more than that number (Guzzo & Shea, 1992; Hackman, 1990). As one might expect from the mixed results cited here, the results of meta-analyses show correlations between group size and group performance that are statistically nonsignificant and that vary widely in size and direction across task types and other variables (Stewart, 2006). One can conclude from these results that the enthusiastic claims for the ideal size of a group are overly simplistic. The best size for one set of group members differs considerably from the best size for another set of group members and depends on the leadership of the group and the type of task (Kozlowski & Bell, 2003). A statement about the one best group size is not justified, but it is still important to pay close attention to the number of members in forming groups. As more research is conducted to clarify the role of size, researchers may find that it is more important as a moderator of the effects of other inputs on how the group interacts and effectiveness.

Who are chosen as the members of the group?

Knowledge, skills, abilities, and personality traits are often called deep level composition factors because they are typically hypothesized to directly affect the task performance of the group. Knowledge, skills and abilities (KSAs) determine the amount of knowledge and skill that group members draw upon in performing the tasks. Personality traits affect the motivation of members and the amount of effort they invest in the performance of tasks. In contrast, surface-level composition factors refer to sex, ethnicity, age, organizational tenure, and other demographic characteristics. Surface level composition variables are more readily identified than deep level variables but only influence task performance to the extent they are associated with deep level variables. For instance, the sex of group members is immediately apparent but it takes a while to determine their task abilities. Whether the sex of members influences task performance depends on whether men and women in the group differ in their abilities, skills, knowledge and personalities. Deep-level composition variables are legitimate leverage points in deciding on group membership because they reflect underlying psychological factors that are important to performance of tasks. Demographic characteristics are not appropriate to use in many cases as the later discussion of the legal restrictions on personnel selection will show.

#### The knowledge, skills, and abilities of group members.

Generally, the higher the cognitive ability of group members, the better the group performs (Barrick, Stewart, Neubert, & Mount, 1998; Bell, 2007; Devine & Philips, 2001). Indeed, the relation of cognitive ability, knowledge, and skill to the task performance of individuals is among the most widely supported findings in psychological research. The issue becomes more complex when one considers how to define knowledge, ability, and skill of the group. One could measure the KSAs of the group as the level of KSA of the smartest member, the least smart person, or the mean or sum of the abilities of the group. The results of meta-analyses of lab and field studies indicate that the mean ability, ability of the smartest member, and ability of the lowest member are all positively related to group performance (Devine & Phillips, 2001). The extent to

which average, high, and low ability is related to group effectiveness is moderated by the nature of the task (Steiner, 1972). On a conjunctive task, no one person can perform the task and the performance of the group depends on the effective coordination of individual members (e.g., mountain climbing). Here the performance of the team is shaped largely by the performance of the least capable member. On a disjunctive task the members must choose from among alternative solutions to the problem (e.g., solving a mathematical problem). Here the performance of the group is shaped largely by the performance of the most capable member. On an additive task where the group's performance is the aggregate of individual performances (e.g., picking apples in an orchard), the performance of the group is shaped largely by the performance of the average ability of the members. The distinctions among additive, disjunctive, and conjunctive tasks are clear in laboratory research, but are of limited value when examining the tasks performed by groups in organizations (Bell, 2007). Organizational tasks often consist of a combination of all three types. An important meta-task facing a typical organizational group is to divide the task into components and then assign members to the various component tasks. Although laboratory research has pointed to some intriguing task factors, much remains to be learned about how real world tasks moderate the relation of KSAs and group performance.

Averaging the KSAs of the members of a group seems less likely to predict the performance of the group if there are differences among members in the criticality of the tasks they perform. The importance of position criticality is demonstrated in a study of the relation between the experience and job-related skill of national league baseball players and team performance from 1974 to 2002 (Humphrey, Morgeson & Mannor, 2009). The average level of team experience is positively related to the percentage of games won in a season ( $r = .32$ ). Also the average level of career experience is positively related to the percentage of games won in a season ( $r = .45$ ). Finally, the average job-related skill of team members is positively related to the percentage of games won ( $r = .37$ ). However, the criticality of the position held by a baseball player moderated the correlation of the skill of individual team member and team performance. The researchers define the "strategic core" of a team as the "role or roles on a team that (a) encounter more of the problems that need to be overcome in the team, (b) have a greater exposure to the tasks that the team is performing, and (c) are more central to the workflow of the team." In professional baseball teams the two positions that constitute the strategic core are the pitcher and the catcher. The career experience and job-related skill are more strongly related to performance for the pitcher and catcher than for other positions.

#### Team KSAs.

In addition to the KSAs related to the tasks that group members perform, Stevens and Campion (1994) propose that there are also team KSAs. They measure teamwork KSA with a questionnaire containing items drawn from the primary findings of team research. One item states that the team wants to improve the quantity and quality of communications of members and gives the respondent four alternative tactics for achieving this objective: "use comments that build upon and connect what others have said", "set up a specific order for everyone to speak and then follow it", "let members

with more to say determine the direction and topic of conversation”, and “do all of the above.” The “right” answer according to the keying of the test is the first option, i.e., “use comments that build upon and connect what others have said.” The more correct responses chosen by the respondent across all items, the more knowledge, skill and ability the respondent is presumed to possess in working as a team member.

The support for the validity of teamwork test is spotty. Most of the published research appears to cast doubt on its validity (Miller, 2001; McClough & Rogelberg, 2003; O'Neill, Goffin, & Gellatly, 2012). One could argue that rather than relying on the selection of members on the basis of their KSAs, organizations should provide training to enhance their teamwork KSAs. Also, measures are needed that are tailored to the specific situation rather than relying on a standard measure such as the teamwork test designed by Stevens and Campion (1994). The findings of at least one study shows that the use of a measure tailored to the situation yields a stronger correlation between teamwork KSAs and team performance (Hirschfeld, Jordan, Field, Giles, & Armenakis, 2006).

#### Personalities of group members.

Knowledge, skills, and abilities are positively related to group performance but the size of the correlations are typically small to moderate in size (i.e., in the 20s). The obvious reason is that members must not only have the KSAs required for the task but also must exert effort in the performance of the tasks and coordinate their efforts. The personality traits of group members constitute another category of inputs and are hypothesized to be especially important in predicting how well a group performs.

There are five somewhat independent dimensions that distinguish the personality traits of people: agreeableness, extraversion/introversion, conscientiousness, emotional stability, and openness. The personality composition of the group seems likely to affect group effectiveness as the result of influencing the motivation of group members to perform the tasks and the extent to which they can effectively interact with other group members. The results of a meta-analysis of the research on personality and group effectiveness indicate that in field studies of actual work groups, all five personality dimensions are related to group effectiveness with the strongest relations found for agreeableness, conscientiousness, and openness (Bell, 2007). The mean score of group members on agreeableness, conscientiousness, openness, extraversion, and emotional stability were all related to group effectiveness in the direction that one might expect. Groups that are more agreeable, conscientious, open, extraverted, and emotionally stable are more effective. The higher the agreeableness and conscientiousness of the members who score highest and lowest on these traits, the more effective the group. Although not as strongly related, extraversion is also positively related to group effectiveness such that the higher the mean extraversion of the group and the higher the extraversion of the most extraverted member, the more effective the group. It is interesting that the score of the lowest scoring group member is related to effectiveness for two of the five dimensions, agreeableness and conscientiousness. This suggests a “bad apple” effect in which groups are particularly vulnerable to individual members who are disagreeable and lacking in conscientiousness.

The mediators of the relations between personality and group effectiveness remain an open question but there are some plausible hypotheses. In a group with highly conscientious members, the group is more motivated to do well on its tasks and perhaps more organized and systematic. In a group that is high on agreeableness, members are able to provide support, coordinate their efforts, and effectively deal with conflict. One could also speculate that more agreeable groups are more likely to show cohesiveness and mutual liking and as consequence are more motivated to succeed. Groups that have members who are more open to new ideas are potentially more flexible, adaptable, and innovative. Groups with members that are high on emotional stability engage in more functional coping and are more positive under stress and threat. The finding of somewhat weaker correlations between extraversion and team success may reflect limits on the extent to which extraverted members can benefit a group. Certainly, having a few extraverted members is beneficial to the extent that it is associated with taking initiative and exerting leadership, but one can easily see how a group full of highly extraverted members could lead to problems. All of these are speculations, however. Researchers have yet to fully explore why the personality traits of members are related to group effectiveness in the manner shown in the meta-analyses.

#### Attitudes about working in groups.

People differ in their preference for working in groups and the attitudes they hold about groups is a predictor of group effectiveness (Bell, 2007). Personality, ability, knowledge, and skills are factors far removed from group processes and the outcomes of those processes and are mediated and moderated by a variety of other variables. Personality, ability, knowledge, and skills are what are called distal antecedents of group process and outcomes. A proximal predictor of group effectiveness that is much closer to the actual functioning of the group is the composite of the attitudes that members take into the group (Bell, 2007). A self-report measure of attitudes toward working in groups is the Collective Orientation Scale (Driskell, Salas, & Hughes, 2010). Attitudes toward affiliation and dominance are the two components in attitudes toward groups as measured in this scale. The affiliation dimension captures enjoyment with working with others and the need to belong and socialize. Some of the items reflecting affiliation were

1. I find working on team projects to be very satisfying.
2. Teams usually work very effectively.
3. I think it is usually better to take the bull by the horns and do something yourself, rather than wait to get input from others (reversed scored).
4. For the most tasks, I would rather work alone than as part of a group (reversed scored).

The dominance dimension reflects going along with the group, conforming to the opinions of others, and the willingness to identify with the team. Examples of items that reflected dominance:

1. It is important to stick to your own decisions, even when others around you are trying to get you to change (reversed scored)
2. I find it easy to negotiate with others who hold a different viewpoint than I hold.

3. I always ask for information from others before making my important decisions.
4. When I disagree with other team members, I tend to go with my own gut feelings.

Based on a laboratory experiment, the researchers report that the correlation between collective orientation and performance is positive on decision making tasks ( $r = .40$ ) and negotiation tasks ( $r = .39$ ) (Driskell, Salas, & Hughes, 2010). In other words, if groups are working on tasks that requires them to work together to choose and decide among options or to negotiate a solution, they perform more effectively if they have positive attitudes toward working in groups. The researchers report that collective orientation is marginally related in a positive direction to performance on executing tasks ( $r = .37$ ) and negatively related (albeit nonsignificantly) to performance on generating tasks ( $r = -.28$ ). The authors suggest that the low interdependence of the brainstorming task that constitutes the generation type probably accounts for the negative relationship between attitudes and group performance. It appears from these findings that a positive attitude toward working in groups becomes more important as an input to the extent that the members must work together and coordinate their efforts in the performance of their tasks.

The national culture in which groups are embedded is an important antecedent of attitudes toward groups that researchers have largely neglected up until now. Within any country people differ in their attitudes toward groups with some people having more positive attitudes than others. However, research on cultural differences suggest that the acceptability of group work varies with the dominant orientation (Kirkman, Gibson, & Shapiro, 2001). Four cultural dimensions that Kirkman and his associates have identified as particularly important in determining attitudes toward working groups are individualism vs. collectivism, power distance, free will vs. determinism, and being vs. doing (Kirkman & Shapiro, 1997, 2001; Kirkman, Gibson, & Shapiro, 2001). Of these dimensions, individualism vs collectivism has received the most attention and the findings suggest as one might expect that cultures where a collectivist orientation is dominant are more accepting of working in groups than in individualistic cultures.

### Diversity.

An input that has become the focus of a lot of research over the last two decades is the heterogeneity or diversity of deep and surface level group composition. Driving much of this research is the hypothesis that more diverse groups are more effective than homogeneous groups. As more research has accumulated, it is clear that things are not as simple as originally believed (Lambert & Bell, 2013; Harrison & Klein, 2007; Meyer Glenz, Antino, Rico, & González-Romá, 2014). Even the definition of diversity is more complex than one might initially believe. Diversity occurs in three ways: separation, variety, and disparity (Harrison & Klein, 2007).

The focus of diversity as separation is a single continuous attribute such as a belief, attitude, or value. Diversity is at its maximum when half of the group is at one extreme of the continuum and the other half are at the other extreme. Consider, for example, the extent to which members of a group agree on the mission of the organization. If the



members share the same opinion and disagree, agree, or hold a moderate position on the mission of the organization, the group is homogeneous with regard to this attitude. If half of the members agree with the mission and the other half disagree, the group is at its greatest with regard to diversity. The typical position is that separation diversity harms group effectiveness by increasing conflict and distrust and lowering cohesiveness.

The focus of diversity as variety is some categorical attribute such as functional background or expertise. Diversity is at its maximum when members of the group are spread uniformly across all possible categories of the variables and is at its minimum when all members are clustered into one category. For example, if a group consists of an engineer, an accountant, a scientist, and a marketing person, the group is maximally diverse with regard to functional background as opposed to all members consisting of one of these functional areas. In the case of functional background, content expertise, and experience, the composition factor is a deep level factor that is directly related to performance of the tasks. When we consider a surface level demographic factor such as sex, ethnicity, or age or other categorical factors such as sexual orientation, the picture is somewhat more complex. Some theorists argue that variety on these factors lead to tension and conflict within the group and can hurt the effectiveness of the group. Others argue that variety increases creativity and innovation as the result of diverse viewpoints, information, and approaches. Most of the research on diversity as variety is focused on traditional demographic characteristics such as ethnicity, sex, and age. There are many other potential bases of variety diversity, however. For instance, researchers have given attention in recent years to the effects of diversity among group members on their time orientation (Mohammed & Harrison, 2013).

The focus of diversity as disparity refers to distribution of some resource such as pay, prestige, or status. Diversity is at a maximum when one member holds the maximum amount of the resource and all the other members hold the minimum amount. For instance, if the maximum pay rate is \$20 per hour and the minimum is \$10 per hour and one member receives the \$20 rate and the others receive the \$10 rate, this group is at the maximum on disparity. If all the members receive the same pay rate, disparity is at its minimum. As in the case of separation diversity, disparity is typically predicted to lead to negative outcomes as the result of conflict, deviance, withdrawal, and other reactions to the injustice of the distribution.

Most of the attention in the research on diversity has focused on diversity as separation and variety, and the results of several meta-analyses of the research show that, contrary to grandiose claims of the benefits of diversity to performance, diversity is only weakly related to performance (Bell, 2007; Bell, Villado, Lukasik, Belau & Briggs, 2011; Meyer, Glenz, Antino, Rico & González-Romá, 2014; Peeters, Van Tuijl, Rutte & Reymen, 2006; Schneid, Isidor, Li, & Kabst, 2015; Stewart, 2006; van Dijk, van Engen & van Knippenberg, 2012; Webber & Donahue, 2001). In the most comprehensive of these meta-analyses, the researchers sample 146 studies and examine both surface level and deep level diversity (van Dijk, van Engen & van Knippenberg, 2012). The researchers report correlations between group performance and diversity that are quite small. The correlations of group performance and ability, values, and attitudes diversity are all

statistically nonsignificant and range from .05 to -.15. Similarly, the relations of age, ethnic, gender, nationality, and educational level diversity to performance are all statistically nonsignificant and range from .00 to -.05. The correlations found for diversity on functional background ( $r = .05$ ) and educational background ( $r = .07$ ) are statistically significant and indicate that higher diversity is related to better performance. Again, the strength of the relationships is quite small. Also small and statistically nonsignificant are the correlations found for diversity with group ( $r = -.02$ ) and organizational tenure ( $r = .00$ ).

The findings of meta-analyses lead to three conclusions. First, the only attribute that is consistently shown to have a positive and statistically significant (albeit small) relation with group performance is diversity on functional background. Second, regardless of the attribute on which diversity is measured, the relations with group performance are quite small. Third, the findings generally suggest that there are other variables moderating the relation of diversity to performance.

### 1. Faultlines.

Researchers have shown that diversity on single demographic attributes such as ethnicity, sex, and age is only weakly related to group performance, the attitudes of members toward the group, and internal group process. Lau and Murnighan (1998) proposed a more powerful approach to investigating demographic diversity is to measure the extent to which the demographic composition of the group constitute faultlines. A geological fault line is a crack in the earth's surface resulting from displacement of rocks below the surface and cause earthquakes. Analogous to geological faults, differences among group members on various attributes become disruptive when members are divided on these attributes into homogeneous subgroups. In the context of a group, a faultline is a potential point of division within the group that can split the group into homogenous subgroups based on attributes of the group members. According to theory, once a faultline in a group becomes active, members identify with a subgroup and lose sight of the group's goals and mission. Conflict, mistrust, and other dysfunctional processes occur as members align themselves with subgroups and vie for power. Faultlines do not emerge in groups in which the group is highly homogeneous. Neither does a faultline emerge when the members are highly diverse with members differing from other group members. Faultlines are most likely to emerge when the group is moderately diverse on attributes (Lau & Murnighan, 1998). The strength of a faultline, and its potential disruptive impact on the group, increases as the number of attributes along which subgroups align increases and the number of possible ways the groups could align along these attributes decreases.

Consider the hypothetical example of group A consisting of four men. Two of the members are 25, Hispanic, and liberal democrats. The other two 40, white, and conservative republicans. Now consider group B. One member is 25, Hispanic, and conservative republican. Another member is 30, white, and a liberal democrat. The third is 50, white, and a conservative republican. The fourth is 40, Hispanic, and a liberal democrat. Group A has the stronger faultline because there is only one way in which the

members could align themselves along the attributes to form homogeneous subgroups. By contrast, group B could align themselves along similarities in ethnicity, age, or politics. There are several quantitative measures of faultline strength that are quite complex and beyond the scope of this text (Thatcher, Jehn & Zanutto, 2003). The present discussion will not deal with measurement issues, but keep in mind the general rule that strength of a faultline increases with (1) increases in the number of distinct subgroups into which the group can potentially split and (2) increases in the number of attributes that members in each subgroup share.

Consistent with the theory underlying the measurement of group faultlines, a meta-analysis of 39 studies using 4,366 groups reports that stronger faultlines are associated with poorer group performance and less satisfaction of members with the group (Thatcher & Patel, 2011). These effects are stronger for group performance than for member satisfaction and stronger for sex and ethnicity than for functional background, educational background, age, and tenure. Also, the effects are stronger in lab research where it is easier to compose groups that are homogeneous on personal attributes than in field research where it is more difficult to identify clean subgroups. This study also reports that conflict and cohesion are mediators of the effects of faultlines on performance. As faultline strength increases, relational conflict increases and cohesion decreases. In turn, increases in relational conflict and decreases in cohesion are associated with poorer performance.

## 2. Moderators of diversity and faultlines.

Researchers have identified several variables that appear to moderate the relation of diversity and faultlines with group outcomes such as performance and member attitudes.

\* Subgroups based on social identity vs. information. Some attributes of group members are closely related to their social identity, i.e., how group members identify and convey who they are to others and distinguish themselves from others. Other attributes are informational in that they are related to the performance of the task and are linked to decision making and group learning. All things held constant, faultlines that form along attributes related to social identity are stronger and more likely to harm the group than faultlines that have an informational basis (Bezrukova, Jehn, Zanutto, & Thatcher, 2009; Carton & Cummings, 2013).

\* Balance among subgroups. Subgroups are balanced when they are equal in size and become increasingly imbalanced as subgroups differ in size. Balance among identity based subgroups appears to hurt performance but balance among informational based subgroups helps performance (Carton & Cummings, 2013). A possible explanation is that identity based subgroups are more likely to contend for power and resources when they are equal in size than when one large subgroup is dominant. Members of balanced subgroups are more threatened by and less likely to cooperate with members of outgroups. By contrast, subgroups that are informationally based benefit from a balance. Members of subgroups that are equal in size are more likely to contribute knowledge and other resources to the performance of the task possibly because they believe they have

more voice in decisions. When subgroups are unequal in size, the dominant group may prevent outgroup members from having a voice in the performance of the tasks and may block them from using all the resources available to them.

\* Objective vs. subjective measures of performance. The type of performance measure moderates the correlations between diversity and group effectiveness (van Dijk, van Enen & van Knippenberg, 2012). Statistically significant negative relations are found between subjectively measured performance and diversity on age, ethnicity, gender, and educational level. Supervisors rated group performance lower when they are more diverse. The correlations between objectively measured performance and diversity on these same factors are all statistically nonsignificant, indicating that diversity is unrelated to hard measures of performance such as quantity and accuracy.

\* Task. Diversity and faultlines appear to have stronger effects when the task is highly complex than when the task is simple (van Dijk et al, 2012). A complex task requires more information processing and diversity typically makes available more potential information that members can apply to decision making and problem solving. Complex tasks also frequently require innovation and the different perspectives reflected in a highly diverse group can stimulate more thinking outside the box within a group.

\* Cultural context. The cultural context of the group may moderate the relation of diversity to group performance. Some indication of this was found in a meta-analysis that focused on gender diversity (Schneid, Isidor, Li & Kabst, 2015). Gender diversity is negatively related to objective performance in countries where gender egalitarianism is low but is unrelated to objective performance in countries with high gender egalitarianism.

\* Group size. There is some evidence that group size moderates the relation of diversity and performance but the nature of the moderating effects is complex. One meta-analysis found that the relationship between team size and faultline strength had an inverted U-shape in which faultline strength was lowest for small and large groups but was at its maximum when group size was moderate (Thatcher & Patel, 2011). Apparently, increasing team size initially strengthens a demographic faultline, but past a point, larger group size is associated with lower homogeneity of the subgroups that are aligned along the faultline. As members within subgroups become more diverse, the impact of faultlines on performance weakens.

\* Perceived diversity. So far the discussion has focused on actual diversity of the group. One potential moderator is whether the diversity is perceived or not. Adverse effects on group processes and performance are more likely to the extent that members perceive demographic diversity (Hetnschel, Shemla, Wegge and Kearney, 2013) and demographically based faultlines (Zellmer-Bruhn, Maloney, Bhappu & Salvador, 2008; Cramton & Hinds, 2005; Cronin, Bezrukova, Weingart, & Tinsley, 2007; Homan & Greer, 2007).

\* Diversity mindsets. These are mental representations of team diversity that reflect

member beliefs about how diversity affects member interaction and performance and how diversity is managed and used (van Knippenberg, van Ginkel & Homan, 2013). There is relatively little research on diversity mindsets, but the findings from several studies suggest that they are important moderators of the influence of diversity on group performance. A negative relation of diversity to performance is more likely to the extent that members believe that diversity is a problem for the group (Hentschel et al, 2013; Hobman, Bordia & Gallois, 2004; van Knippenberg, Haslam, & Platow, 2007; Meyer & Schermuly, 2012).

Fortunately, it appears that one can modify mindsets so that group members are more receptive to diversity and its potential benefits. In a laboratory demonstration, 4 - person student groups were formed, each one consisting of 2 men and 2 women and each group was assigned to one of four experimental conditions (Homan, van Knippenberg, Van Kleef, & De Dreu, 2007; see figure 9.3).

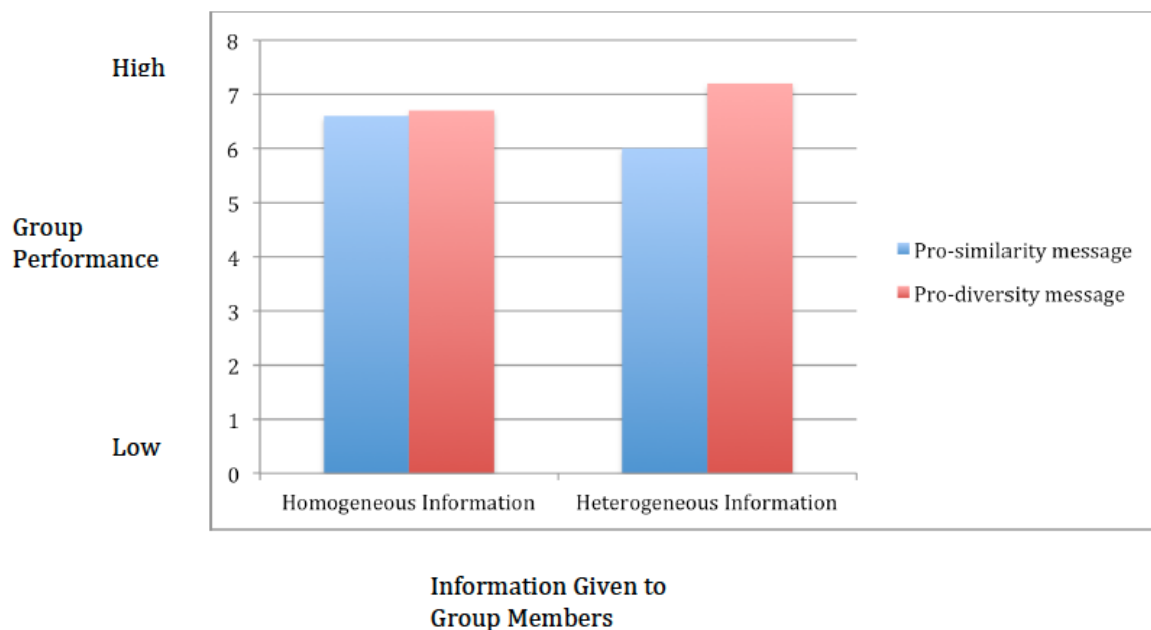


Figure 9.3: Performance of Groups as a Function of Whether the Information Given to Them was Heterogeneous or Homogeneous and Whether They Received a Pro-Similarity or Pro-Diversity Message

In half the groups, members were given the same information with which to perform the task and in the other half they were given different information. Also, in half the groups, members received a persuasive communication arguing for the benefits of similarity among group members for group performance and functioning, whereas in the other half, members received a persuasive message arguing for the benefits of diversity. Groups in which members did not share all the same information performed better when they received the pro-diversity appeal than when they received the pro-similarity appeal, but groups in which the members received all the same information did not differ in their performance as a function of whether they received a pro-similarity or pro-diversity

appeal. The pattern of results depicted in figure 9.3 suggests interventions to improve the performance of groups that involve the changing the attitudes of members in the direction of supporting diversity.

\* Leadership. The leadership of the group can determine whether diversity is an asset or a threat. If the leader acts to ensure that members see the potential benefits and takes steps to tap the valuable resources associated with heterogeneity, diversity is more likely to increase group effectiveness. Evidence of this comes from a study involving 62 research development teams surveyed as to the transformational leadership exhibited by team leaders (De Poel, Stoker & Van der Zee, 2014). They find that when the leaders of the teams are high on transformational leadership, national and educational diversity benefit the performance of the group. Transformational leaders are apparently able to get members to identify with their groups and, in turn, higher identification with the group is associated with more effort on the part of members to tolerate and capitalize on diversity. Another demonstration of the moderating effects of transformational leadership comes from a survey of government employees in Australia. Higher transformational leadership apparently compensates for some of the harmful effects of demographic diversity but low transformational leader exacerbates these effects (Muchiri & Ayoko, 2013).

\* Geographic dispersion. The members of today's work groups are often dispersed geographically and interact by means of phone, computer, videoconferencing, and other electronic media. Geographic dispersion seems likely to exacerbate the negative effects of diversity and encourage the formation of disruptive faultlines, especially when the dispersion occurs across different cultures and nationalities (Chiu & Staples, 2013). In an ambitious test of the effects of geographic dispersion and diversity, 266 graduate business students located at 14 universities in ten countries on four continents worked on projects as part of six person teams (Polzer, Crisp, Jarvenpaa, & Kim, 2006). Each team was assigned to one of three experimental conditions. In the fully dispersed condition the six group members differed in that each was located in a unique university and country. In the two-subgroup condition three members all resided in one university and country whereas the other three members resided in another university and country. In the three subgroup condition the groups consisted of three subgroups consisting of two members who were located in the same university and country. Group members located in the same university and country reported less conflict with and more trust in their fellow group members than those located in geographically distant universities. Members in the two subgroup condition tended to report more conflict and less trust than the members of the fully dispersed groups.

Chiu and Staples (2013) proposed as a solution to the problems created by the faultlines associated with geographic dispersion that group members publically disclose something about themselves on a weblog and that they comment on each other's postings. According to the authors, "Specific information about each remote team member degrades group boundaries and weakens the salience of out-group identity. Feelings of social attraction to out-group members based on individuating information then minimize the negative consequences of categorization" (Chiu & Staples, 2013, p. 519) In their experiment gender and location were used as the bases for a faultline with participants

assigned to all male or all female subgroups each located in the same place. Their results suggest that this intervention provides the basis for repairing the damage associated with faultline formation and allows the groups to operate effectively despite the geographic dispersion.

\* Faultline triggers. Group faultlines are often latent and only become active when there is an event that brings attention to the characteristics along which subgroups form. A precipitating event increases the salience of these factors to group members and activates the group differences associated with group composition. Some of the potential types of precipitating events are identified in a descriptive study involving 134 interviews with employees in 16 different countries (Chrobot-Mason, Ruderman, Weber, & Ernst, 2009). Some of the most frequently mentioned faultline triggers are differential treatment of subgroups in pay raises, promotions, and disciplinary actions, clashes in political, religious, and moral values, pressures on minority subgroups to assimilate to values and practices of the dominant subgroup, and insults or humiliations that devalue a subgroup.

\* Time. A neglected factor that is likely to have a large impact on the relation of diversity to group process and performance is time. Harrison, Price, Gavin and Florey (2002) find that as time passes, group members increasingly collaborate and this collaboration weakens the effects of surface-level diversity on team performance and strengthens the effects of deep-level diversity on performance. Increasingly, models of work group process and performance are incorporating time as an element and attempting to show how different group compositional mixes are more or less salient at different points in the time of the group's life (Mathieu, Tannenbaum, Donsbach, & Alliger, 2014). The results so far suggest that time heals and that as a group matures, the adverse effects of diversity diminish and the beneficial effects increase. Although this is a positive message, there is very little research exploring the influence of time. One can easily imagine scenarios in which the passage of time has the opposite effects, i.e., magnifies the harmful effects. In groups in which there are serious differences in motives or objectives and deep faultiness more time together may well lead to spiraling conflict and other dysfunctional processes. Determining the influence of time requires us to pay close attention to how the groups are led. Some leaders seem likely to intervene and guide the group to more mature relationships whereas other leaders may further divide and disrupt relationships.

Points to ponder:

1. What is the best size for a group? This is a commonly asked question. What does the research suggest as the answer?
2. Distinguish between deep level group composition and surface level composition, providing examples of each.
3. How does the nature of the task moderate the impact of the task ability of members on the group performance?
4. What are Team KSAs? Discuss what the research shows regarding Team KSAs and their impact on group performance.
5. What does the research show regarding the correlation between the Big Five personality factors and group performance?

6. What is meant by the “bad apple effect” in the research on personality as a group input?
7. Review the items listed in the text for measuring attitudes toward working in groups. What is your attitude and why do you think you have this attitude?
8. What are the ways that diversity occurs in a group and the potential impact of each type of diversity on group functioning?
9. The research suggests that diversity is only weakly related to performance of groups. What are some of the factors that moderate the relation of diversity to group performance?
10. Does the weak relation of diversity to group performance mean that organizations do not need to be concerned about diversity? Why or why not?
11. What are group faultlines and how do they affect the performance of the group and the attitudes of group members?
12. What does the research suggest as strategies for avoiding the problems and maximizing the positive effects of group diversity and faultlines.
13. Describe potential faultline triggers and their impact on group effectiveness.

### Group tasks

Groups perform a variety of tasks but there is probably a tendency to overlook the nature of the tasks as determinant of how the group members interact and how they should interact to effectively perform their tasks. This is something akin to the fundamental attribution error so often found when observers are asked to attribute the causes of the performance of individual employees. In the fundamental attribution error, the observer tends to attribute outcomes to the traits of the individual performer. At the same time, factors external to the performer, such as the influence of the task on the group's interactions and outcomes, are often overlooked. A group of people is observed acting cooperatively and harmoniously and they are described as a happy, harmonious group of people. In drawing this conclusion, the observer perhaps fails to note that the task is structured to encourage happy, harmonious interactions. Likewise, a group is observed in which members are in conflict. The observer concludes that it is an acrimonious group made of acrimonious people, failing to note that the task encourages conflict and discourages cooperation.

### Conjunctive, disjunctive and additive tasks.

How a group performs relative to the abilities and expertise of its members depends on the task. In additive group tasks, members independently contribute to the total output of the group. Imagine a group of sewing machine operators, each of whom produces a garment. The total productivity of the group is the total number of garments sewn. All group members perform the same activity and pool their results at the end. The more capable the members, the better the group performs. The overall performance is a direct function of the total pooled output of the members. On a conjunctive task group members perform different, but related, tasks that allow for the completion of a goal. Every group member must complete his or her task for the group task to be completed. An example is a mountain climbing team in which all the climbers are connected to each other. They all



must successfully climb the mountain for the group to succeed. On conjunctive group tasks, the group performs at the level of the least capable member. The third type is the disjunctive group task where members must choose among alternatives in solving a problem or issue. On group judgment tasks, group members must choose one correct answer from all the alternatives. For example, an executive team might try to forecast sales for three different products as part of a decision on which product to produce and promote. On a group decision making task, the group members must choose the best option from a set of options. An example would be a group trying to decide which of four applicants to hire for a position. In these cases, the ability of the best member defines how well the group can do. Whether the group performs at or below the best member depends on how obvious the correct solution to the problem is to the group and whether the group members can accurately access the relative expertise of members. The less obvious the correct answers are to a problem, the more likely the group will perform below what the best member in the group could have achieved.

#### McGrath's (1984) typology.

This typology of group tasks presents four general processes each of which defines tasks occupying one of four quadrants in a circumplex (see the figure 9.4).

1. Some tasks are characterized by activities in which the output of the group consists of something that is generated by members. The two types of tasks within this quadrant are *planning tasks* in which the group generates plans or solutions to a problem and *creativity tasks* in which the group generates ideas.
2. The second quadrant in his typology consists of tasks in which the focal activity of the group in producing an output is to choose among alternatives. The two types of tasks in this quadrant include *intellective tasks*, in which the group decides on a solution and there is a correct and a wrong solution to the problem, and *decision making tasks* in which the group chooses from among several alternatives a preferred option but there is no objective right or wrong answer.
3. Processes in which the group must negotiate in producing the output define a third quadrant. One type of task in this quadrant is the cognitive conflict task in which the group members share the same interests but must resolve their differences in viewpoints. An example is the jury in which members share in common the desire to make a just verdict but must resolve differences in how they perceive the evidence submitted in the trial. The second type of conflict task is the mixed-motive task in which members do not share the same interests and must resolve these clashes through bargaining. An example, is a labor negotiation team in which group members try to negotiate a contract that meets the interests of the union and management.
4. The final quadrant consists of tasks in which the group primarily engages in the execution of task activities. In *contests*, the task involves a pitting of individuals against one another in the attempt to win, and in *performance tasks*, individuals perform a task in the attempt to achieve some standard of performance.

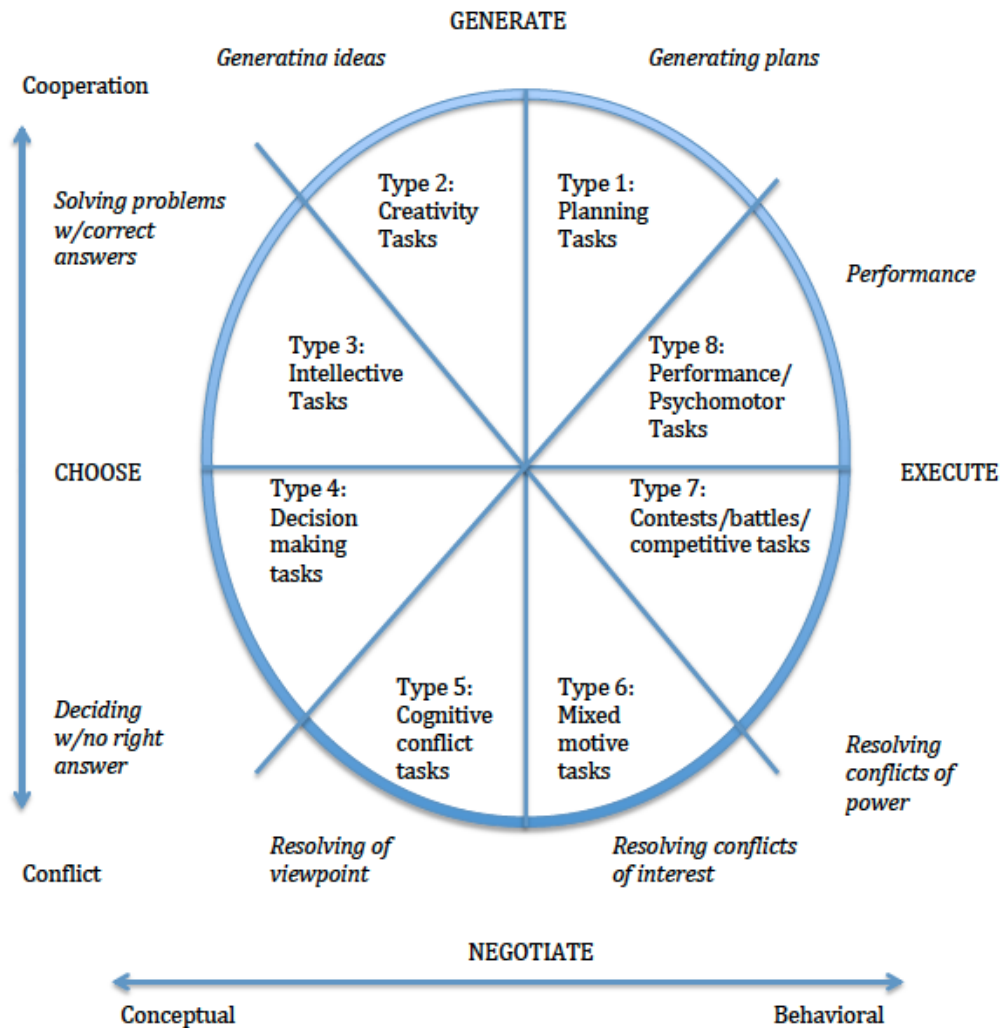


Figure : McGrath's task circumplex

Source: McGrath, J. E. (1984). *Groups: Interaction and Performance*.  
 Englewood, N. J.: Prentice Hall, Inc.

Figure 9.4: McGrath's Group Task Circumplex Model

In conceiving of group tasks in terms of a circumplex, McGrath (1984) proposed that tasks could be located somewhat along two dimensions: generate vs. negotiate and choose vs. execute. The horizontal dimension (i.e. choose vs. execute) was anchored by tasks requiring cooperation and tasks involving conflict. Intellective, creativity, planning and performance tasks fall at varying points along the cooperation end of the continuum, whereas decision-making, cognitive conflict, mixed motive conflict, and contests/battles fall at varying points along the conflict end of the continuum. The vertical dimension (i.e., generate vs. negotiate) was anchored by tasks that were conceptual in nature on one end and behavioral in nature on the other. Creativity, intellective, decision making, and

cognitive conflict tasks fall at varying points along the cognitive end of the continuum. Planning, performance, contests/battles, and mixed motive tasks fall at varying points along the behavioral end of the continuum.

There are other typologies for group tasks, but none of them possess the theoretical elegance of the McGrath (1984) circumplex presented in figure 9.4. Using this model, Straus (1999) conducted a laboratory experiment investigating the relative frequency of three types of communication acts across three types of task performed by groups (see figure 9.5). Seventy-two 3-person groups of undergraduates completed three tasks with increasing levels of member interdependence as prescribed by the vertical dimension of the task circumplex: an idea generation task, an intellective task, and a judgment task. Patterns of group communication show support for the vertical dimension of the task circumplex. Analyses of the group process data generally provide support for the hypotheses that patterns of agreement, disagreement, and process communication correspond to the level of member interdependence imposed by the tasks. In idea generation tasks such as brainstorming, each individual generates an idea and there is little interdependence among members. In intellective tasks where the group is trying to solve a problem or in judgment tasks where the group is attempting to achieve a collective opinion or verdict, there is interdependence among members. They have to cooperate and coordinate their actions to achieve a good outcome. The interdependence requirements of intellective and judgment tasks evoke more agreement, disagreement, and process interactions relative to the low interdependence of the idea generation tasks.

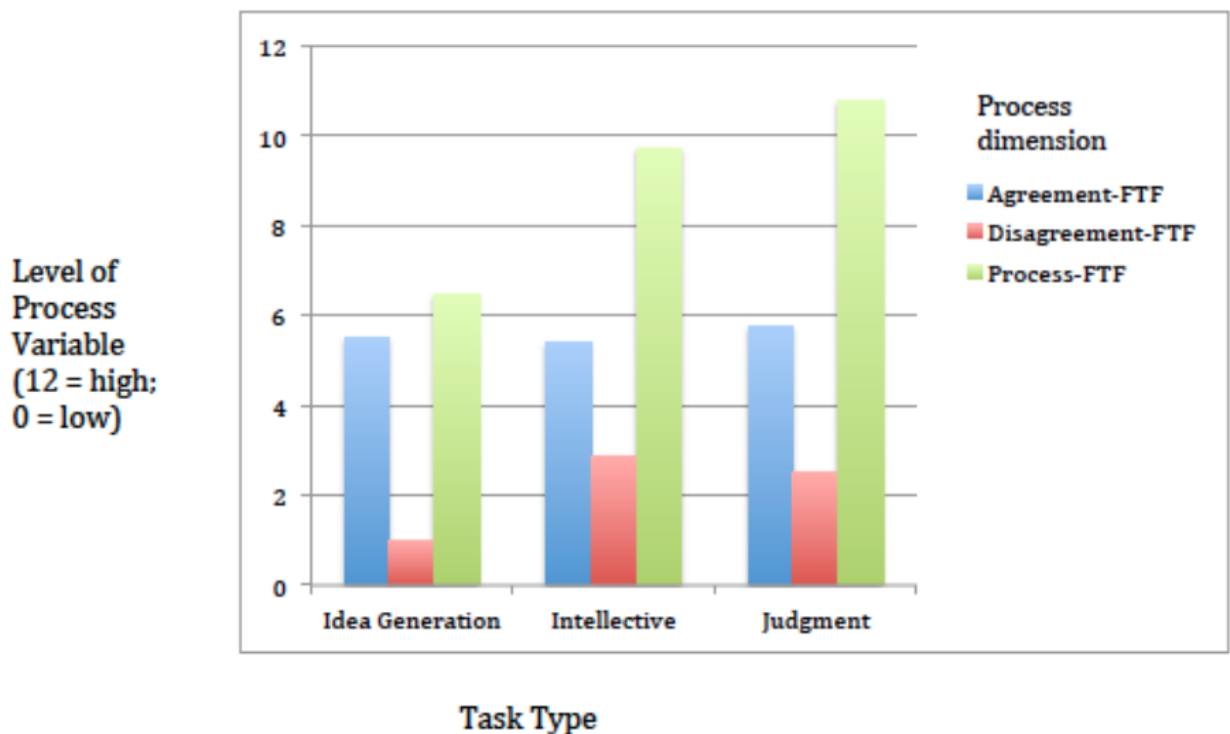


Figure 9.5: The Level of Agreement, Disagreement, and

## Process Interaction Observed on Idea Generation, Intellective, and Judgment Tasks

Points to ponder:

1. What is meant by the statement: “Groups perform a variety of tasks but there is probably a tendency to overlook the nature of the tasks as determinant of how the group members interact and how they should interact to effectively perform their tasks.”
2. Describe the eight major types of group tasks in the McGrath circumplex model and the underlying dimensions that the model uses in distinguishing among them.
3. Assume that you were the leader of a newly formed group and that you plan to give the group an ice breaker task to get people talking to one another to create a good feeling about the group. What type of task on the McGrath circumplex would you choose? What type of task in this model would you avoid?

### Group Interpersonal Processes

In Hackman and Morris input-process-outcome model of group performance, interpersonal process is the mediator between inputs such as the ability and personality of group members and outcomes of the group. Process is discussed in the previous chapter and is essentially how members of a group relate to one another.

Decades of research on group effectiveness suggest that groups often do not perform at the level that they are capable of performing and interpersonal processes are responsible for this failure to achieve potential. Steiner (1972) referred to the culprits for subpar performance of groups “process losses”. Groups do not inevitably perform below their potential, however, and while groups lose in some ways, they may gain as well when they meet to tackle problems. Although the laboratory research in social psychology shows that the losses often outweigh the gains, the use of groups in organizations requires careful attention to the potential process gains as well as the potential process losses. A modification of Steiner’s (1972) famous equation more accurately describes how process affects group performance.

Group Productivity = Group Potential - Process Losses + Process Gains

Who influences whom and how?

There are two ways that groups exercise control over its members. One way is called normative control refers to conformity to group norms by members because they want to belong to the group and win the approval of peers. Normative control is often considered somewhat diffuse, unspoken and in some cases unconscious. Speaking to the implicit nature of normative influence, Hackman (1992) referred to group norms and other cues signaling how group members should act as ambient stimuli. The other type of control is rational control and refers to influence associated with the economic calculation of group members that the rewards of conforming to group goals and values outweigh the costs. Here the influence is explicit, often consisting of direct communications to members of the consequences if they act this way or that. In some groups one influence mechanism is

dominant whereas in other groups both types are important. In a few groups neither type of influence is at work. In these groups the lack of control has negative consequences for member satisfaction and group performance.

As an example of normative control, consider group A in which members take action in compliance with the norms of the group without any inducement to take these actions. Indeed, they often anticipate what they believe is the desires of their peers and conform to norms without being told to do so. Smooth running teams seem to rely on normative control as members coordinate their actions with their fellow team members. In contrast, consider group B in which rational control is dominant. The interactions of members of group B are characterized by overt monitoring of each other's actions and frequent communications about the appropriateness of these behaviors. Members overtly criticize those who stray from accepted ways of doing things while heaping praise on those who comply.

Self-report measures are typically used in the research on normative and rational control. The researchers in one study measure rational control within work groups by asking members questions such as "My chances for a pay raise depend on the recommendation given by my team"; "My chances for a bonus are not influenced by my team's recommendation (reversed)"; "My chances for promotion depend on the recommendation given by my team"; "I am not dependent on my team for important organizational rewards (reversed)"; and "The rewards I receive are determined by the recommendation of my team members" (Stewart, Courtright & Barrick, 2012, p. 440). The researchers measure normative control with a team cohesion scale that asked questions about the extent to which members are "ready to defend each other from criticism by outsiders," "help each other on the job," "get along with each other," and "stick together" (p. 440). In this particular study, both normative control and rational control are associated with higher performance of the work groups. A statistical interaction is found, however, in which groups that are highly cohesive are less affected by rational control than groups that are low in cohesion. It appears from this interaction that normative control associated with high cohesion can substitute for the explicit rational control in which members explicitly induce other members to go along. Of course, both types of control are needed in most groups and one could surmise that rational control usually precedes normative control. Without explicit communications among members about what is expected, implicit norms seem unlikely to emerge. When they do emerge, normative influence processes would seem more conducive to group effectiveness. This is somewhat speculative, however, and needs empirical verification.

Yukl and his colleagues (e.g., Yukl & Tracey, 1992) propose a typology of influence tactics that the author reviews in the chapter on social processes. This typology is also applicable to understanding how group members attempt to influence each other and how these influence attempts impact their effectiveness. The most effective of these, according to their research, are rational argument (the use of logic and information to influence others), consultation (involving others in a decision), and inspirational appeals (attempts to increase enthusiasm through an appeal to ideals). According to their research, the less effective tactics are pressure (the use of threats, demands or persistent

reminders), ingratiation (the use of flattery or friendly behavior), exchange (offering favors later in exchange for compliance now), legitimizing (reminding people of your authority), personal appeals (appealing to loyalty and friendship), and coalition tactics (forming alliances to increase the power of one's requests). It seems likely, however, that all of these influence tactics can have a functional role in the interactions among members of a group and that which tactic is most effective depends on the task and issue. For instance, a survey of public policy decision makers suggests that forming coalitions and communicating inspirational appeals are most effective in discussions of future objectives related to a policy, whereas rational persuasion, inspirational appeals, and consultation are most effective in discussions of concrete, current issues (Jensen, 2007).

A crucial type of influence in many groups is expert influence. In this type of influence group members yield to the influence attempts of those who possess the knowledge, skills, and abilities necessary to perform tasks. Some research suggests that when pressures to conform and the willingness to defer to others are beneficial when driven by task-based cues such as the relative expertise of group members or their training, but are dysfunctional when driven by cues such as gender, age, or ethnicity and are affinity based, i. e., aimed at winning the approval or avoiding the disapproval of the majority (Joshi & Knight, 2015). If the expertise within the group is obvious, then group members are likely to recognize the person who has the best answer as the expert and perform at the level of its potential. If it isn't obvious, the group is likely to perform less than its potential. Unfortunately, the identification of those who possess the most expertise is seldom easy. As a consequence, groups assign weights to individual contributions within the group on the basis of perceived rather than actual expertise and on irrelevant cues such as gender, age and ethnicity. A frequent finding is that the amount of time that members spend talking is a strong predictor of how much they influence the group (Schmid, 2002).

It is also possible that the final group decisions are influenced more by speaking time than actual expertise (Regula & Julian, 1973). Additional evidence comes from research showing that the net number of positive statements about an alternative in a decision making group can have an inordinate amount of influence on the final decision of the group. The valence of each alternative is computed by subtracting the number of negative comments from the number of positive comments about that alternative (Hoffman & Maier, 1964). The researchers found that over 80 percent of groups chose the alternative that had a valence of 14 or larger, regardless of who contributed the statements (Hoffman & Maier, 1964). These findings suggest that is possible for a single member to talk up a preferred solution and persuade the group to adopt that solution.

There is insufficient research to provide a basis for conclusions about the relation of conformity, anticonformity, and independence to group effectiveness, but the reader perhaps can allow the author to speculate a bit. Effective groups seem likely to have a mix of all three rather than predominately one or the other. Too much conformity can lead to groupthink (which is discussed in more detail later in this chapter) and lack of critical thinking. Anticonformity in the form loyal dissent can benefit a group (Johnson, van de Schoot, Delmar & Crano, 2015; Packer & Chasteen, 2010). Indeed, such benefits

can accrue in some cases even when the dissenter is wrong by forcing the group to think more critically about the options (Schulz-Hardt, Brodbeck, Mojzisch, Kerschreiter & Frey, 2006). On the other hand, too much independence and anticonformity can tear a group apart and prevent it from reaching or implementing decisions. Research is needed to tease out these fascinating dynamics and identifying the optimal balance among going along, going alone, and going against.

### Do members share leadership?

The hope in using groups in organizations is that members will take initiative in performing their tasks and that they will share in the leadership of their activities rather than simply waiting for the formal leader to issue directives. It is widely believed that groups in which leadership responsibilities are distributed among members perform more effectively than those in which leadership resides in only the formally appointed leader or a few of the group members (Katz & Kahn, 1978, p.332). There are numerous reasons for why shared group leadership benefits group performance. An obvious reason is that it prevents one individual becoming the target for resentment as might be the case when only the formal leader or a few persons in the group carry all the leadership responsibilities. Shared leadership is also probably associated with interpersonal processes usually thought to benefit a group including sharing of information, helping other members, group cohesion, group adaptability, and group learning, to name only a few.

Shared leadership is usually measured with self-reports by group members of the extent to which individuals in the group act as leaders to facilitate task performance and improve the morale and satisfaction of members. Typically, participants are asked questions such as “When it comes to my work, my team members give me instructions on how to carry it out,” “My team members let me know about it when I perform poorly,” “My team members will recommend that I am compensated more if I perform well,” and “my team members encourage me to work together with other individuals who are a part of the team” (Ensley, Hmieleski, Pearce, 2006). In another study the researchers measure the construct more directly by having each member of consulting teams rate every other member of the group in response to the question “to what degree does your team rely on this individual for leadership” (Carson, Tesluk & Marrone, 2007). Groups with shared leadership are those with members who indicated that the group relies on all group members as opposed to just a few. In this particular study, researchers report that team members report more shared leadership to the extent that members are perceived to have a shared purpose, the members support each other, and they have an opportunity to state their opinions and participate in decision making. In turn, their clients rate those consulting teams who have higher reports of shared leadership as more effective.

The results of meta-analyses clearly show that the sharing of leadership within a group is associated with positive consequences. In a meta-analysis of 42 studies of shared

leadership, groups in which members report shared leadership have members who report more positive attitudes toward the group, use more positive interpersonal processes, and are more effective than groups that have lower levels of shared leadership (Wang, Waldman & Zhang, 2014). The corrected correlation of shared leadership and group effectiveness is .34. The authors of this meta-analysis also conclude that stronger relations of leadership sharing to group outcomes are found when (1) the shared leadership is visionary and charismatic and (2) the task is complex. The impact of shared leadership is also more pronounced for member attitudes and interpersonal processes than for group performance of tasks. Finally, shared leadership contributes additional variance to the prediction of group outcomes above and beyond the leadership exhibited by the formally appointed leader of the group.

These findings are similar to what is found in a second meta-analysis of the shared leadership group research (Nicolaides, LaPort, Chen, Tomassetti, Weis, Zaccaro & Cortina, 2014). Based on an analysis of 52 studies of shared leadership, the authors report a corrected correlation between shared leadership and overall group performance of .35, indicating that as the extent of shared leadership increases, the effectiveness of the group also increases. Several moderator variables affect the size of the correlation between shared leadership and group effectiveness. A stronger relation of shared leadership to group performance is found on highly interdependent tasks than for less interdependent tasks, for subjectively measured performance than for objectively measured performance, and for shorter tenure groups than for longer tenure groups. Also, confidence of the team in their ability to perform their tasks appear to mediate the relation of shared leadership and group performance such that shared leadership increases confidence and confidence leads to higher performance.

A factor that seems particularly important but that has received little attention in the research is whether the management of the organization and formal leaders of the group and group members support leadership sharing. The author suspects that before leadership sharing can occur within a group, the manager and group members must hold positive beliefs about the potential benefits of allowing group members to take responsibility and engage in decision making. If management does allow leadership sharing, the positive benefits only seem likely to continue to the extent that management and group members continue to support sharing. Consider a situation in which shared leadership leads to numerous positive consequences but a manager then takes credit for the success. The first step of sharing leadership within a group is the delegation to the group of some of the authority normally assumed by the manager or supervisor of the group. This first step is not an easy step to take for some managers who want to hold on to their power. Neither is it an easy step for some group members who may fear that other members will take advantage of the situation or who believe that the group needs one and only one boss.

Although it is easy to see how shared leadership can benefit the group, it is possible for it to have negative consequences as well. One instance in which this might occur is if it leads to a conflict within the group over who is responsible for what and how much relative influence each person should have. As in the case of pressures to conformity,



much depends on the norms of the group as well. If the norms are consistent with goals and objectives that are consistent with effective performance, then shared leadership should enhance performance by enhancing the group's ability to pull together around these norms. But if the norms are inconsistent with effective performance of the tasks, just the opposite may occur.

Is there conflict among members and why?

One of the primary reasons that people may avoid using groups to perform tasks is the fear that group members will fight over preferred solutions and approaches. Similar to the other process variables, however, conflict in the group can become an asset that benefits the group or a liability that detracts from group effectiveness. Groups can fall into win-lose competition in which members fight to win arguments rather than work to achieve group goals. This isn't to say that diversity always leads to conflict and that management should design homogenous groups. Also, disagreement is not always a negative. To the contrary, diversity of opinions and backgrounds and a lively exchange of differences is often a tremendous boost to group creativity. However, to the extent group members differ there is always a potential for dysfunctional conflict.



*Conflict within a group can be an asset as well as a liability.*

Three types of conflict are distinguishable (Jehn, 1997). Task conflict is when group members engage in conflict over substantive task-related issues. An example of statements from interviews that reflect this type of conflict are “We usually fight about work things – interpreting our reports, disagreeing about government regulations” and “We constantly fight about accounts and which numbers to use and how to interpret them. We really only fight about this work stuff.” Relationship conflict is when members clash as the result of personal differences that are unrelated to task issues. An example of a statement from interviews that reflect this type of conflict is “Like any situation, there are some of us that don’t get along, and so we don’t talk at all.” Finally, process conflict is when group members engage in disagreements over how the accomplishment of the task should proceed, who has responsibility for what, how resources are allocated in the group, and how to structure interactions within the group. An example of a statement from interviews that reflect this type of conflict is “There’s some conflict on the composition of the team and who should do what.” In interviews with work groups, Jehn (1997) finds that there are keywords associated with each type of conflict. Task conflict is described with words such as differ, disagree, discuss, generate, goals, ideas, negotiate, opinion, perspective, and viewpoint. Relationship conflict is described with words such as backstabbing, barb, bicker, complain, destroy, destructive, difficult, disgruntled,

dislike, disrupt, enemy, fault, friend, personality, trouble, grumbling, hindrance. Process or procedural conflict is described with allocate, assign, delegate, distribute, divide, means, order, organize, what, when, and who.

The common assumption that conflict is to be avoided seems to receive some support in a meta-analysis involving 89 independent samples, 6,122 groups, and around 28,000 group members (O'Neill, Allen & Hastings, 2013). Relationship conflict is negatively related to performance on all tasks, although it is statistically nonsignificant for decision making tasks. Task conflict also has a negative relation to performance on production and other types of tasks. Finally, process conflict is negatively related to group performance, but there the number of studies is too small for this conflict type to explore the moderating effects of task type. Of the three types of conflict, process conflict has the strongest negative relation with performance. The authors attribute the large impact on group outcomes of process conflict to effects of this type of conflict on feelings of injustice and inequity.

Much of the research assumes the task, relationship, and process conflict are independent of each other. This is probably not the case in most groups. Conflicts over task and process issues can easily spillover into relationship conflict and can negate any of the benefits of task conflict. One meta-analysis examining the relation of conflict to group performance and reports that relationship and process conflict are negatively related to group performance (de Wit, Greer & Jehn, 2012). The effects of task conflict on group performance depend on how task and relationship conflict are related. When task conflict is associated with relationship conflict, task conflict is unrelated to group performance. On the other hand, when task and relationship conflict are unrelated, task conflict is positively related to group performance.

One of the more striking results of the reviews of the group conflict research is how small the correlations are between conflict and group effectiveness. One possible reason is that the relation of conflict and performance is nonlinear. Shaw, Zhu, Duff, Scott, Shih, and Susanto (2011) report evidence of an inverted U relation between conflict and performance. Relationship conflict moderate the task conflict–team performance relationship (see figure 9.6).

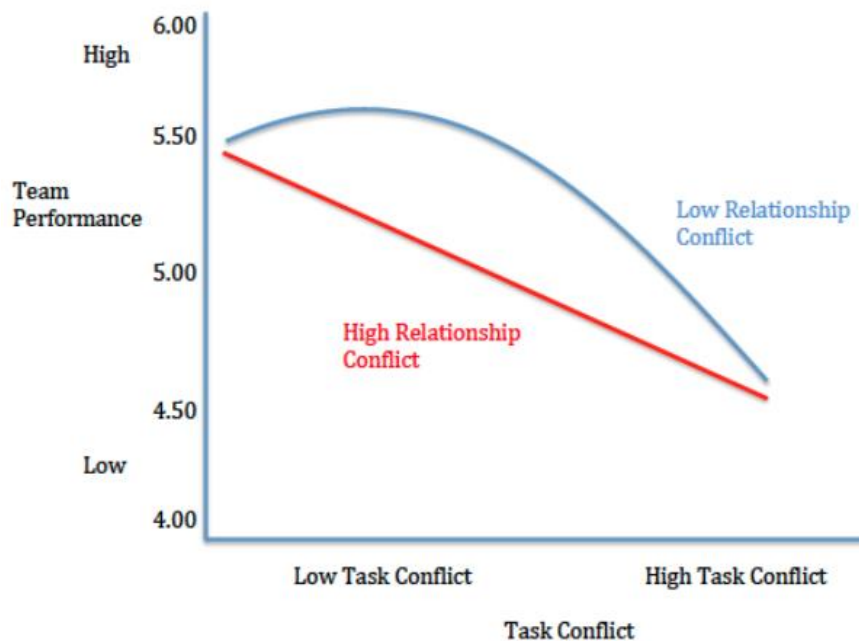


Figure 9.6: Team Performance as a Function Task Conflict in Teams with High and Low Relationship Conflict

Specifically, the relationship is curvilinear in the shape of an inverted U when relationship conflict is low, but the relationship is linear and negative when relationship conflict is high. The results for team-member satisfaction are more equivocal, but the findings provide evidence that relationship conflict exacerbates the negative relationship between task conflict and team-member satisfaction.

When relationship conflict is high, higher task conflict is associated with poorer group performance. When relationship conflict is low, however, group performance increases as task conflict increases up to a moderate level of task conflict. As task conflict moves from moderate to high levels, group performance then decreases for those groups characterized by high relationship conflict. Satisfaction with the team generally decreases with increases in task and relationship conflict.

Do members share information with each other?

Each member of a group brings with him or her some information that other members do not possess and that the group could use to effectively perform their tasks. A key process in groups that perform tasks requiring information processing, decision making, and problem solving is the extent to which members share with each other the information that they possess. There are two components of information sharing in a group (Mesmer-Magnus & DeChurch, 2009). One component is called uniqueness of information sharing and refers to the extent to which members of the group with unique information perhaps

associated with their expertise share that information with other members of the group. The other component is called openness of information sharing and refers to the extent that group members communicate with one another, keeping them apprised of events and informing them of developments in the performance of their tasks. Much of the research on information sharing uses the so-called hidden profile procedure. In these studies, groups are created in which members hold some information in common while other information is unique to each member or shared by only a few of the members.

The typical finding is that group members devote more time to discussing information that they hold in common and do not share to the extent that they should the unique information that each possesses. The typical hidden profile group task is structured so that groups can only achieve the highest success unless each member steps forward and states to other members the information that he or she has been given. The failure to share information harms the effectiveness of the group in solving the problem. Meta-analyses of the research on information sharing shows that both open sharing and unique sharing are positively related to the performance of the group and the satisfaction of group members (Mesmer-Magnus & DeChurch, 2009). The more sharing of information, the more effective the group. It is easy to understand why sharing information that is relevant to the task improves performance, but why does sharing of information irrelevant to the task also benefit effectiveness? Some of the benefits are possibly associated with members getting to know each other. Sharing can lead to more accurate perceptions of the relative expertise of each member. Sharing can allow members to anticipate how others in the group will think, feel, and act, thus improving coordination of their activities. Sharing also can build trust, solidify norms for how members should behave, build morale, and in other ways positively influence interpersonal processes and emergent structures. As is the case with all the processes discussed in this chapter, it is possible to have too much of a good thing. However, the reluctance of members to share suggests that most groups have a long way to go before they reach the point of too much sharing.

Points to ponder:

1. Why do groups so often perform at a level lower than their potential? Provide examples from groups that you have observed.
2. In what circumstances could a group surpass its potential? Provide examples from groups that you have observed.
3. Groups are likely to benefit to the extent that those with the greatest expertise on the tasks have the greatest influence on other members. However, amount of talking independent of actual expertise seems to shape perceptions of expertise. What would you do as a group lead to ensure that members accurately perceive expertise and are appropriately influenced by those with greater expertise?
4. Conformity and nonconformity are often thought of as the ends of a single continuum, but there is research to suggest that nonconforming can exist in more than one form. Describe an alternative model for conformity vs nonconformity?
5. Shared leadership in a group is beneficial. As a group leader how would you ensure that the group members share in the leadership of the group?

6. Conflict exists in the form of task, relationship, and process conflict. Distinguish among them and describe how you would lead a group to ensure that task conflict benefits performance without spilling over into other more dysfunctional types of conflict.
7. What is the hidden profile procedure and what have we learned about group process from laboratory research using this procedure?
8. Can a group have too much sharing? When is sharing dysfunctional?

Do members coordinate and synchronize their activities?

An essential attribute of what is commonly thought of as effective teams is coordination. This can occur in many different forms but high performing sports teams provide particularly vivid examples. Take for example a champion basketball team. Group coordination is obvious as members smoothly pass the ball off to each other and anticipate each other's actions in working toward the goal of shooting baskets. An important task of groups in face-to-face groups is the allocation of speaking time among members and the coordination of who speaks, when, and in what order. Obviously, if all members start speaking at once or interrupt each other, the group has a difficult time in performing intellectual and judgment tasks. Research has shown that "hmm-hmm" and "uh-huh," head nods and eye contact serve as signals that help coordinate conversations and encourage listener understanding. A member who nods his or her head in response to a speaker's comments sends a signal that this speaker should continue talking but silence, frowns, or lack of eye contact signals that it is time for the speaker to stop and let others speak. Members of effective groups are able to send these signals in a smooth coordinated fashion, whereas ineffective groups suffer disruptions in conversation as the result of a failure to coordinate talking time and order. Given the nature of computer-mediated groups, the coordination of talking time is less of an issue than it is in face-to-face group discussions.

Coordination is also shown in synchronization of group member responses at the cognitive, perceptual-motor, and physiological levels (Gorman, 2014). When this occurs unconsciously, the processes by which the thoughts, feelings, and actions of group members become synchronized is called behavioral entrainment (McGrath & Kelly, 1986). Two examples of entrainment are when group members mirror each other's smiling or frowning. One member smiles and others mimic that smile without being aware that they are doing so. Another example is turn taking in the conversation within a group. The reader probably has experienced groups in which the conversation goes smoothly and everyone seemingly has a chance to participate. In behavioral entrainment each member talks and then pauses to allow others to talk without interruption. This give and take may occur at an unconscious level and is a defining characteristic of a highly effective team. The reader has no doubt encountered groups in which turn taking does not emerge, and there is constant interruption and competition over who can talk, when they can talk, and how much time they can talk.

One might expect that as group members become more familiar with each other as the result of more experience in working as a team, coordination will improve. Although this is likely

correct, team experience does not necessarily allow a group to avoid failures of coordination. Researchers in a study of professional basketball teams observed that errors of team coordination declined as team members became more familiar with each other but then increased at the highest levels of familiarity (Sieweke & Zhao, 2015).

Coordination also when members consciously and explicitly attempt to synchronize their actions, thoughts, and feelings. For example, in an attempt to ensure that all members of a group are on the same page and are interpreting instructions the same, members might ask each other to repeat the instructions. However, Kolbe, Waller, Wacker, Grande, Burtscher, Spahn (2014) observe that action teams in high-risk environments (e.g., trauma teams or airplane crews) are reluctant to use explicit means of coordinating their actions and instead rely on implicit, less overt coordination processes. In a study of hospital anesthesia teams, the researchers videotaped interactions among team members to assess the explicit and implicit attempts to coordinate that distinguished between high performing and low performing teams. They conclude that explicit attempts at coordination are more likely to occur in high performing groups than the low performing groups. Specifically, high performing teams are more likely to engage in monitoring of each other's actions and then to follow up with speaking up, giving instructions, and providing unsolicited assistance than low performing teams. Interestingly, the results also suggest that high performing teams engage in implicit coordination in which team members "speak to the room." This is defined as behavior in which a team member communicates something about actions and information but does not direct this communication to a specific person. They refer to implicit attempts to coordinate activities as autochthonous coordination behaviors. Occurrences of autochthonous coordination are linked. For instance, an episode of speaking to the room is then followed by additional episodes of speaking to the room.

Do members engage in prosocial behavior?

As the old adage states, there is no "I" in "team". Essential to fulfilling the ideal and becoming a team is a category of interpersonal process that includes helping, altruism, and cooperation and is called prosocial behavior. The members of effective groups appear to work together rather than competing. They go beyond task requirements to help out each other even when helping is not required and doing so prevents them from maximizing their own personal desires. At the other end of the continuum are egoistic acts guided by personal goals of the individual and that ignore the interests of the group. Just as prosocial behavior can enhance group effectiveness, members who engage in excessive self-focus can disrupt the functioning of groups (Driskell, Salas & Johnston, 1999).

Helping, altruism, and cooperation serve a task function to the extent that these behaviors are directed specifically to the performance of tasks (Hyatt & Ruddy, 1997). Examples include monitoring and backup to assist team members to perform their tasks, such as (1) providing a teammate verbal feedback or coaching, (2) assisting a teammate behaviorally in carrying out actions, or (3) assuming and completing a task for a teammate" (Mars et al, 2001, p. 363). When these prosocial behaviors occur as offers of emotional support,

expressions of compassion to members who are experiencing pain, or the performance of favors they are serving a socioemotional function such as promoting harmony and building positive relationships.

Group prosocial behavior can start with the altruistic acts of one or a few of group members who serve as models for other group members or who voice concerns about the need for more proactive behaviors (Li, Kirkman & Porter, 2014). A demonstration of this process was provided in a survey of 104 teams in a petrochemical organization in China. Supervisors rated the team's performance and creativity while group members rated the degree of cooperation, helping, and monitoring that occurred within the team (Li, Zhao, Walter, Zhang and Yu, 2015). Based on these survey responses, the researchers identify "extra milers"...individual group members whose helping behavior stand out from others in the group. Helping behavior of the extra miler has a disproportionate impact on group processes and effectiveness.... Especially if that individual occupies a central position in the workflow network." As group members observe and model the prosocial behavior of others in the group, and as this prosocial behavior benefits the group, a norm emerges within the group supporting these acts. Helping within the group is related to group effectiveness on a variety of tasks including sales, intelligence and military units, consulting teams, paper mill crews, and customer service in restaurants (Grant & Patil, 2012). Cooperation among members is associated with improvements in response time, customer satisfaction, and manager ratings of performance (Hyatt & Ruddy, 1997). Le Pine et al (2008) distinguish between two types of cooperation within groups. Monitoring progress toward goals is defined as "members paying attention to, interpreting, and communicating information necessary for the team to gauge its progress toward its goals" (p. 239). A second dimension is team monitoring and backup behavior defined as members "going out of their way to assist other members in the performance of their tasks" (p. 239). Assistance to other members in the performance of their tasks include feedback, coaching, and other forms of assistance. A meta-analysis has shown that both are positively related to member satisfaction and team effectiveness (corrected  $r = .25$  and  $.30$ , respectively, for monitoring progress toward goals; corrected  $r = .30$  and  $.29$ , for respectively team monitoring and backup).

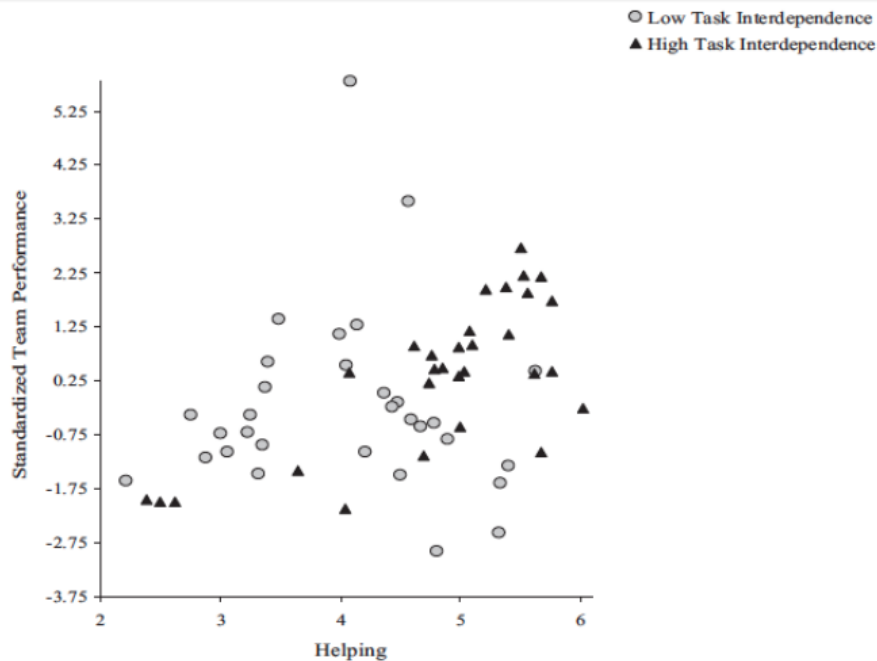


Figure 9.7: Observed Group Performance and Helping in Low and High Interdependence Task Conditions.

As is the case with all of the interaction processes discussed in this text, there are potential downsides to helping, altruism, and cooperation. Spending too much time and effort on benefitting others could increase role overload, stress, and dissatisfaction and eventually lead to a backlash against altruistic acts (Li, Kirkman & Porter, 2014). It is possible that helping others detracts from individual task activities. Also, those group members whose personalities and needs are not as congruent with prosocial behavior may feel alienated or even coerced by pressures to engage in these acts. Perlow and Weeks (2002) found that the act of helping was seen as an unwanted interruption in a work unit of software engineers in a high-tech American Fortune 500 company. Prosocial behavior seems least likely to occur and most likely to have negative consequences when the tasks are low in interdependence and do not require cooperation (Podsakoff & MacKenzie, 1994). In an experimental demonstration of the potential adverse consequences, participants were assigned to one of two task types (Bachrach, Powell, Collins & Richey, 2006). The highly interdependent task required group members to coordinate and cooperate their activities, whereas the low interdependence task did not require coordination. Observers recorded the extent to which group members helped each other. As one might expect, helping was positively associated with group performance in the high interdependence condition, but these same behaviors had an inverted U relation to performance in the low interdependence condition. A moderate level of helping facilitated performance but both high and low levels of these same behaviors were associated with lower group performance. A plot of these findings is presented in figure 9.7



Points to ponder:

1. Groups benefit when they engage in explicit interventions to improve coordination of their efforts such as giving feedback to others about their performance. However, groups often are reluctant to use explicit means of coordination and instead rely on implicit coordination. What are the forms of implicit coordination and why do groups often prefer this to explicit coordination?
2. What are the barriers in a group to prosocial behavior such as helping, altruism, and cooperation? As a leader what are the steps you could take to encourage prosocial behavior?
3. Explain what is going on in the groups depicted in figure 9.7.

What is the affective tone in the group?

Individual group members experience affect in the form of moods and emotions that vary over time in their positivity, negativity, and intensity. Affect also occurs at the level of the group and the expression and management of group affect constitutes another form of interaction process (George, 1990). To measure group affect, researchers typically ask individual members of the group to indicate their mood and emotions on checklists of adjectives (e.g., depressed, happy, excited, etc.). The mean of the adjective ratings across group members is taken as a measure of the group affective tone. A variety of positive consequences are associated with groups with members who on average have more positive affect (Barsade, 2002; Barsade & Gibson, 2012; Collins, Lawrence, Troth & Jordan, 2013). Groups with more positive affective tone have fewer absences, are more willing to show organizational citizenship, more coordination, less conflict, and higher performance. Groups with more negative affective tone have more member absenteeism, are less likely to engage in prosocial acts such as organizational citizenship and helping, are less coordinated, have more conflict, and perform more poorly. Expressions of affect also serve as cues that lead to interpretations of one's fellow group members' behavior and expectations for future behavior (Van Doorn, Heerdink & Van Kleef, 2012).

Group affect expressed by one or a few members can spread among other members in the group in a contagious manner (Barsade, 2002). A particularly important source is the leader. Researchers have shown that the positive or negative mood of a leader is transmitted to group members and spreads among them, with either beneficial (in the case of positive affect) or dysfunctional (in the case of negative affect) effects on performance (Sy, Côté, and Saavedra, 2005). As group members experience stressful events over time a stress climate can emerge and affect how they perceive and deal with subsequent pressures (Kozusznik, Rodríguez, & Peiró, 2015). Knight and Eisenkraft (2015) report evidence for the benefits of positive group affect in a meta-analysis involving 2,799 groups and 39 independent studies. In this study, higher social integration is reflected in higher levels of cohesion, commitment, cooperation, prosocial behavior, identification, and trust and low levels of relationship conflict. More positive group affect is associated with higher social integration (corrected  $r = .45$ ) and group task performance (corrected  $r = .33$ ). More negative group affect is related to lower levels of social integration (corrected  $r = -.36$ ) and group task performance (corrected  $r = -.20$ ).

Once more there are potential downsides to positive affect and potential upsides to negative affect. Although Knight and Eisenkraft (2015) report from their meta-analysis that shared positive affect is strongly and consistently related to beneficial effects, their findings suggest a more complex picture for negative affect. In general, negative affect is related to a lack of social integration and poorer performance, but these effects are dependent on the context of the group. Negative affect can bring group members together when the group is confronted with an external threat or when members are unfamiliar and come together to perform a short-term task. A potential moderator of the relation of group affective tone and performance is the pre-existing trust that exists within the group. When trust is low, a positive group tone benefits the performance of the group on a creative task but that if trust within the group is already high, positive affect potentially hinders group performance (Tsai, Chi, Grandey, & Fung, 2011). The harm is when high trust and positive affect prevent the critical thinking necessary for problem solving. Along these same lines, research involving individuals shows that mild negative affect such as might occur with moderate anxiety or sadness can benefit problem solving and decision making tasks (Eysenck & Calvo, 1992; Forgas, 2013, 2010).

The effects of group affect probably is a function of how well the team members can manage affect. Emotional intelligence reflects the extent to which team members differ on this skill and consists of four skill components: awareness, knowledge, decision making, and management. Groups that are high on emotional intelligence are sensitive to the momentary changes that can occur in their own and others' feelings during group interactions. Disclosing and even discussing these feelings can constitute a first step in the direction of managing these emotions. By contrast, in groups that are low on emotional intelligence members do not attend to the displays of emotion that occur in the group and suppress any discussion or acknowledgement of how members feel about the issues and tasks. Groups high in emotional intelligence also are skilled in managing emotion of group members. They can engage in self-control, can disconnect from emotions when necessary, and can promote positive emotions when appropriate. A group that is high on emotional intelligence is more capable of building good personal relationships within the group and maintaining these relationships. Troth, Jordan, Lawrence, and Tse (2012) examine the role of individual self-reported emotional skills prior to team formation and subsequent team task performance eight weeks later. They report that there is no influence at the individual level between emotional skills and performance. However, team-level emotional skills are positively related to team task performance scores. One possibility that deserves additional research is that in a team that is high on emotional intelligence members can compensate for the actions of those members who have low emotional intelligence. Thus, members can effectively deal with individuals who disrupt the group with their negative affect and prevent their negativity from disrupting the synchronization and coordination of their activities.

How motivated are members to work with their groups?

As discussed in the chapter on motivation, individuals differ in their choice of goals and the vigor and persistence with which they pursue these goals. Vigor, persistence, and goal

choice are determined by the expectancies that individual employees hold for the consequences of their actions. The same motivational variables observed at the individual level appear to operate at a group level and constitute another important category of interpersonal processes that serve as antecedents to group outcomes and also mediate and moderate the effects of the input variables (Ilgen, 2014).

An idea of what group level motivation is comes from an examination of items from the team work engagement scale (Costa, Passos & Bakker, 2014). The researchers identified three dimensions underlying member responses to the items. One of these reflected the vigor with which team members approach their tasks. Another reflected the dedication with which team members perform their work. The third was called absorption and reflected the immersion of team members in their work. The items from the scale and the dimension associated with the item are listed below:

1. At our work, we feel bursting with energy. (vigor)
2. At our job, we feel strong and vigorous. (vigor)
3. When we arrive at work in the morning, we feel like starting to work. (vigor)
4. We are enthusiastic about our job. (Dedication)
5. My job inspires me. (Dedication)
6. We feel happy when we are working intensely. (Absorption)
7. We are immersed in our work. (Absorption)
8. We get carried away when we are working. (Absorption)

Not surprisingly, research using this scale shows that teams reporting higher scores on this measure tend to perform better (Costa, Passos & Bakker, 2014).

The mere presence of others in a group can invigorate and energize members and represents one of the potential upsides to using groups to perform tasks. The first experiment ever conducted in social psychology dealt with the phenomenon of social facilitation (Triplett, 1898). The researcher in this study observed that cyclists had better times when they raced with other cyclists than when performing alone. This boost in performance as the result of the presence of others performing the same activity or as the result of an audience that observes the performance was called social facilitation (Allport, 1924). It is important to note that social facilitation refers to the effects of a noninteracting group of people and is the consequence of the mere presence of others.

Social facilitation can trigger physiological responses that energize performance without any intervening cognitive assessment of the situation. However, social facilitation and other increases in motivation are often mediated by how members perceive the group and its ability to perform its tasks. Two types of group cognitions that appear to influence group motivation and that have a large amount of attention from researchers are group potency and group efficacy. Shea and Guzzo (1987) defined group potency simply as "the collective belief of a group that it can be effective" (p. 335). Group potency is a general belief shared by group members that their group can accomplish a variety of tasks across a variety of circumstances. One measure of group potency asks members to

indicate the extent to which the group has each of the following attitudes or expectations (Lester, Meglino & Korsgaard, 2002):

To what extent does your group

- (1) have confidence in itself,
- (2) expect to be known as a high-performing team,
- (3) feel it can solve any problem it encounters,
- (4) believe it can be very productive,
- (5) believe it can get a lot done when it works hard,
- (6) believe no task is too tough for this team,
- (7) expect to have a lot of influence around here,
- (8) believe it can become unusually good at producing high quality work.

Closely related to the construct of group potency is group efficacy. This construct is adopted from Bandura and colleagues' notion of self-efficacy and refers to a shared belief by members that they have the capability to execute a specific course of action and successfully perform a specific task (Lindsley et al, 1995). Measures of group efficacy vary across studies but are often very similar to group potency measures. The primary difference is that group efficacy measures are typically specific to a task. A meta-analysis of the relation of group efficacy and group potency with performance reports a corrected correlation of .41 between group efficacy and performance and a corrected correlation of .37 between group potency and performance (Gully, Incalcaterra, Joshi, & Beaubien, 2002). A somewhat higher correlation between efficacy and performance and between potency and performance is found on highly interdependent tasks than on tasks with low interdependence.

A third contributor to the level of motivation observed among group members are the attitudes toward working in groups that members hold for groups and bring to their group interactions. In an individualistic culture such as the United States, it is not uncommon for members of a group to slack off because of the shared belief of members that groups are a waste of time, inefficient, and generally less preferred than assigning task responsibilities to individuals. Group meetings are the butt of jokes and apparently provide an endless inspiration for cartoons (for one example, see the cartoon below). These attitudes are not entirely irrational. They probably reflect not only the values of an individualistic culture but also the many meetings that are so badly run. The problem is that achieving task goals often requires group work, and negative attitudes only serve to prevent members from taking the steps needed to improve the effectiveness of the group. Attitudes toward groups are self-fulfilling to the extent that members start the group experience believing the group will fail and then act in a way that ensures the failure.



*The collective motivation of group members is a crucial process dimension.*

As is the case with all the process variables in this chapter, there are downsides to high levels of group motivation. A meta-analysis of research using measures of attachment to the workgroup and to the organization reports found that workgroup attachment is a stronger influence than organizational attachment (Riketta & Van Dick, 2005). Compared to the correlations found for attachment to the organization, work group attachment is more strongly related to work group satisfaction (corrected correlation = .53 versus .22), extra-role behavior (corrected correlations = .29 versus .20), and workgroup climate (corrected correlations = .55 versus .34). Likewise, work group attachment was less strongly related to organizationally related outcomes than was attachment to the organization. The correlations with organizationally related outcomes were lower for organizational satisfaction (corrected correlations = .22 versus .43), organizational extra-role behavior (corrected correlations = .29 versus .36), and intent to leave the organization (corrected correlations = .30 versus .48). The researchers suggest on the basis of their results that “strong identification with the workgroup might not always be beneficial for the organization as a whole. Because identified and committed group members internalize the group’s norms to a greater extent, they are also more likely to follow these norms even if they are in conflict with those of the larger organization. For example, WAT (work group attachment) should increase the propensity to help out team mates whose performance does not meet organizational standards. However, although such behavior probably accords with the respective team’s norms, it may well be detrimental to the overall performance of the organization” (p. 505)..... They conclude that an employee’s “form of attachment is most strongly related to potential outcome variables of the same focus” (p. 505).

When people see themselves as a group, mere membership in the group can cause individuals to slack off (Karau & Williams, 1993). This slacking off by the group is called social loafing is more likely when people are independently performing a task, perceive that others in their group are performing the same task, and believe that their pooled outcomes will constitute the group output. The effect increases in strength the larger the group and the less identifiable each member’s contribution to the group output

and is observed across a wide variety of tasks. When an individual slacks off because others are performing the task and can carry the load, it's called free loading. For a humorous example of free loading from the South Park TV show check out the following link (the language is bleeped out at the end....it's not a technical breakdown).

<http://www.youtube.com/watch?v=gqJ79kAFVho&feature=relate>

Laboratory experiments have shown that increasing the number of participants working on the same task lead to a reduction in average individual effort probably as the result of the difficulty members encounter in monitoring and providing feedback to each other (Harkins & Petty, 1982). In one of the few field studies of social loafing, Liden and Bennet (2004) surveyed members of 23 intact work groups made up of 168 employees. At the individual level, increases in task interdependence and decreases in task visibility and distributive justice are associated with more self-reported social loafing. At the group level, increased group size and decreased cohesiveness are related to increased levels of self-reported social loafing. Interestingly, the more group member perceive that their coworkers were loafing, the less they engaged in social loafing. According to the authors, group members attempt to compensate for the lack of motivation of their fellow members.

Although mere presence of others can invigorate and improve performance as the result of social facilitation, a review of over seven decades of research reveal that the mere presence of others who are coacting or serving as an audience also can harm performance (Zajonc, 1965). There are a variety factors that moderate and mediate social impairment from mere presence. One is the nature of the task. The reviews of the research on mere presence shows that on simple tasks, mere presence facilitates performance but on difficult or poorly learned tasks, mere presence impairs performance. Another factor is the uncertainty about how unfamiliar others will act and whether these others pose a threat to the individual. To the extent that an individual is unfamiliar with others in the group and are unsure of how they will respond, the presence of these persons can harm performance. A third factor is the anxiety that individuals experience as the result of anticipating that the others will evaluate them. Associated with unfamiliarity and evaluation anxiety is a heightened sense of self-awareness that results from the presence of others and is another potential factor in the negative impact of mere presence. The personality of the group member also plays a role in whether a social facilitation or impairment effect occurs (Uziel, 2007). Those who are low in self-esteem, high on trait anxiety, and introverted tend to see social situations as threats and experience negative affect as the consequence of the mere presence of coacting others and audiences. Those who are high in self-esteem, low on trait anxiety, and extraverted tend to see social situations as opportunities and experience positive affect in response to social situations. Persons with a personality profile showing a positive orientation to social situations tend to show a facilitation effect as the consequence of social presence of others whereas those with negative social orientation profile show an impairment effect.

## Do members reflect, learn, and adapt?

A particularly important interaction process that can determine whether a group is effective or ineffective is team reflexivity. This process dimension is defined as the extent to which the members can reflect on their previous interactions and performances (Burke, Salas & Diaz, 2008; Sessa & London, 2008). Reflexivity in a group can occur at any point before, during, or after a task episode, but often occur as transitional processes that group members execute between performance episodes (Marks, Mathieu & Zaccaro, 2001). Within each episode, teams repeatedly cycle between periods of team action, including processes such as team coordination and monitoring progress toward goals, and periods of team transition, including processes such as mission analysis and goal specification. Teams that are high on reflexivity take advantage of transition periods to engage in self-evaluation and to consider how to improve on previous performances. Such groups reflect on their internal processes and how members can work better together as well as on the external environment of the group. Such teams learn from experience and can adapt well to changes. By comparison, non-reflexive groups show limited awareness of their internal processes and external environment and tend to react to rather than act proactively (Schippers, Edmondson & West, 2014). Schippers Den Hartog and Koopman (2007) developed a measure of group reflexivity. Some representative items from this measure are listed below and provide a sense of what is meant by group reflexivity:

1. We review our methods of working as a result of changes in the environment.
2. We talk about different ways in which we can reach our objectives.
3. We work out what we can learn from past activities.
4. We question our objectives on a regular basis.
5. If things don't work out as they should, we take the time as a team to find the possible cause of the problems.

Team reflexivity is distinguishable as a process construct, but it is closely related to the group learning construct. Whether a group learns from their experiences and can adapt to changes in the environment are typical consequences of reflexivity. According to Sessa and London (2008, p. 5) "Group learning includes learning how to be a group and how to do things, acquiring knowledge, skills, and behaviors, and learning how to become a whole new entity in order to survive. Groups learn how to take the fragmented outputs of each individual member, pool them, and over time, integrate them in a way that individuals in the group could not do working alone." The effects of the inputs on group effectiveness are mediated in many cases by whether the group learns from experience. One of the inputs that group learning appears to mediate is diversity. The researchers in one study found that groups who spent time discussing the challenges associated with diversity are more likely to show positive relations between diversity and performance (Ely & Thomas, 2001).

Individuals are observed to differ in the approach that they take to the acquisition of knowledge and skills. Individuals with a learning orientation focus on how they improve relative to their past performance and are concerned with the mastery of the material.

Individuals with a performance orientation focus on how they perform relative to others and are concerned with appearing more successful than others. Research extending these same goal orientations to the group level shows that they are also important correlates of group effectiveness (Gully & Phillips, 2005). In one study these orientations were measured at the group level with the average scores of group members on a self-report questionnaire measure of learning and performance orientations (Porter, Webb & Gogus, 2010). The group level scores on these measures predict how well groups perform when they are dealing with a task involving slack resources. Four person groups with a high performance orientation tend to show smaller performance improvements over time than groups with a learning orientation. The authors conclude that groups with a high level of performance orientation tend to stick with previous strategies and routines whereas a learning orientation is associated with greater flexibility and higher performance.

Team adaptability is closely related to reflexivity and is the extent to which a group can meet novel demands by changing “its configuration of roles into a new configuration of roles using knowledge acquired through interaction in the course of task execution as well as through more explicit exploration of transaction alternatives” (LePine, 2005, p. 1154). The ability to adapt is especially important in groups such as first responders and crews operating complex and risky technology. In a study of nuclear power plant control room crews, the participants were presented with simulations of realistic scenarios depicting problems that have actually occurred at nuclear plants and that could lead to disastrous consequences if not dealt with properly (Stachowski, Kaplan, & Waller, 2009). The crews had 3 to 6 members and each crew member performed a specific role such as crew leader and board operator in charge of the reactor core, cooling systems, and emergency systems. Successful handling of the simulated crises required the crew to share information and work together in a coordinated and interdependent manner. The interactions of the crew members were observed and recorded as they responded to each crisis. The most effective teams followed standardized procedures but did not rigidly adhere to these procedures. Instead they actively sought and processed information and were willing to go outside standardized procedures and interact in ways that were part of the routine. The researchers concluded that “Superior crews exhibited fewer, shorter, less complex, and more flexible patterns of crisis response than did average-performing crews” (Stachowski et al, 2009, p. 1541).

Although most work groups in organizations could benefit from more reflexivity and learning, there are potential downsides to these processes if groups go too far and overemphasize them. Evidence of this comes from a study in which team members were asked to assess, on a 7-point Likert scale, the extent to which their team (a) looks for opportunities to develop new skills and knowledge, (b) likes challenging and difficult assignments that teach new things, (c) is willing to take risks on new ideas in order to find out what works, (d) likes to work on things that require a lot of skill and ability, and (e) sees learning and developing skills as very important (Bunderson & Sutcliffe, 2003). They found that teams evidenced sharp declines in performance on performance as their learning orientation increased beyond a point. This downturn in performance was especially pronounced for teams that were already doing well. One could surmise on the



basis of these results that groups can overemphasize self-reflection and learning and this absorption in these activities can detract from their tasks.

Do members engage in transactive memory?

When people become close friends or colleagues they can serve as memory aids for each other. Think of some time when, in the midst of a conversation, there is a failure of memory. As attempts are made to recall the information others in the conversation jump in and try to help. They too grasp for the specifics. What ensues is a collective attempt at recall, and whalla! Suddenly what was momentarily forgotten is remembered. This collective recall of information is called transactive memory and it is another important interaction process that one can observe in groups as they engage in their organizational tasks. Transactive memory is defined as a process by which two or more people cooperatively store, retrieve, and communicate information (Hollingshead, Gupta, Yoon & Brandon, 2012; Wegner, Erber & Raymond, 1991).

The research has shown that effective groups are more likely to engage in team transactive memory processes and to develop stabilized patterns of retrieving information (Ellis, Porter, & Wolverson, 2008). This is apparent in first responder teams such as fire-fighters and paramedics. Such teams encounter nonroutine and changing situations and transactive memory allows team members to draw from the expertise of the group, coordinate their actions, and quickly deal with the demands of the situation. To the extent that a group develops a transactive memory system, the group can operate at a level that far surpasses the sum of the individual expertise of its members. Most of the research on transactive memory has used some variation on a basic procedure. In this procedure, individuals are asked to recall information and then are brought together as a group to recall the same information. Transactive memory is observed when the group recalls more information than the aggregate of the information recalled by the individuals. The processes involved are measured directly by observing how members of the group assist each other in the recall task. A self-report questionnaire to measure transactive memory in actual organizational groups asks group members the extent to which members coordinate their recall of information, have faith in the expertise of fellow group members, and have specialized areas of expertise that they can contribute to the group (Lewis, 2003). Examples of some of the questions used in this instrument are:

“Each team member has specialized knowledge of some aspect of our project,”  
“Different team members are responsible for expertise in different areas,”  
“I know which team members have expertise in specific areas,”  
“Team members were comfortable accepting procedural suggestions from other team members,”  
“I trusted that other team members’ knowledge about the mission was credible,”  
“I did not have much faith in other members’ expertise” (reverse-coded),  
“Our team had very few misunderstandings about what to do,”  
“We accomplished the tasks smoothly and efficiently,”  
“Our team worked well in a coordinated fashion”

## Higher order process dimensions

By now the reader is aware that numerous process dimensions distinguish effective from ineffective groups. He or she is also aware that there is considerable overlap among some of these dimensions. Is it possible to reduce these dimensions to a smaller number?

LePine, Piccolo, Jackson, Mathieu, and Saul (2008) address this question in a meta-analysis with 138 studies, 1,507 correlations, and 147 independent samples. Using a confirmatory analysis, they reduce the myriad of process dimensions to only three.

Transitional processes are interactions among group members during transitions in the performance of the task. These include reflexivity and learning. Interpersonal processes include conflict and expression of affect. Action processes are behaviors that target achieving group goals such as helping others, sharing information, and coordinating task activities. The findings support a hierarchical conception of group process in which the three process dimensions reflect “an even broader team process concept...one that reflects the overall quality of teamwork processes” (p. 295).

Points to ponder:

1. How could negative affect sometimes benefit a group? What is meant when teams are described as being skilled or unskilled in managing affect?
2. How does the nature of the tasks performed affect the impact that member motivation has on group effectiveness?
3. Define the constructs of group potency and group efficacy and discuss how they might benefit performance of group tasks.
4. Have you ever observed social loafing or free loading in a group? What happened and why? What impact did have on the group?
5. What is meant by group reflexivity? How does reflexivity impact group learning and other outcomes? What could you do as a leader to make sure a group engages in reflexivity?
6. Could a group ever have too much reflexivity?
7. Describe what happens in terms of social process when transactive memory processes occur in a group.
8. What does the research suggest as a potential categorization of the various interpersonal processes that mediate inputs and outcomes of a group?
9. How would you summarize the various interpersonal processes discussed here in terms of the formula:

**Group Productivity = Group Potential - Process Losses + Process Gains**

Which of the processes are likely to serve as process losses and which are likely to serve as process gains?

## Emergent Group Structures

As discussed in the last chapter, social processes solidify and stabilize to form group structures. Once they have emerged, group structures constrain future processes and

determine the effectiveness of the group. Although one could conceive of a structure for each of the processes, the focus here is on five emergent structure that seem especially important in understanding and predicting how well a group performs: shared mental models, norms, interpersonal relationships, cohesion, and identity.

What social roles emerge?

An almost endless number of social roles are identifiable in an organization but the most frequently mentioned are group socio-emotional and task roles (Benne & Sheats, 1948). Persons occupying socio-emotional roles focus on personal and relational issues, such as resolving conflicts among people, meeting individual member needs, ensuring that everyone has a voice in decisions, and relieving emotional tensions. Those occupying task roles focus more on issues related to getting the job done, such as clarifying responsibilities, planning, organizing, and keeping other employees on track in the performance of their work. These roles serve two primary requirements of any social system: maintaining the system by making sure that people do not leave (maintenance function) and fulfilling the goals of the system (task functions). The leadership chapter discusses how leadership styles are distinguishable along these same two basic functions. A third type that is sometimes discussed is the individual role. Here the employee engages in self-oriented behavior defined by his or her own personal and ignores the needs and expectations of others in the situation. In a group in which cooperation is essential to performance of tasks, individual roles are often dysfunctional.

What mental models emerge?

Effective groups have members who share to some extent the way they think about the group and its activities. Members develop models of how equipment is operated, how the tasks are performed, and how members of the group relate to one another (Cannon-Bowers et al., 1993). These team mental models help guide how members interact with one another, their contributions to their tasks, their diagnoses of problems, and how they learn from experience. Team mental models emerge in four phases according to the team compilation model (Kozlowski, Gully, Nason & Smith, 1999). In the team formation stage, members come to understand their common mission and develop a conception of themselves as a team. In the task compilation phase, the focus of the members is on developing the knowledge and skills necessary to performing their tasks. In the role compilation phase, members turn their focus outward on other team members as they communicate to each other what they know, their relative skills, and who is responsible for what tasks. In this third phase, social roles emerge in which members come to understand their individual responsibilities and form expectations for others in the group. It is in this third phase that mental models of how the group should function emerge. Also members develop a transactive memory system that allows them to draw from past experiences and learn from these experiences. In the team compilation phase, members use their mental models.

The two crucial dimensions of team mental models are accuracy and commonality. The

members of effective groups are hypothesized to have accurate mental models of the tasks and group functioning. Moreover, the members of effective groups are hypothesized to have similar mental models. This means that they possess similar ideas about how the group does its work and what is important to successful performance. Researchers use a variety of approaches to measuring mental models and assessing the extent to which the models are shared among group members. In one study of the mental models of basketball teams, scenarios were first generated describing various situations that occur in games and the most effective ways of dealing with these situations (Webber, Chen, Payne, Marsh & Zaccaro, 2000). A questionnaire was then constructed to measure team mental models in which team members indicated their preferred approaches to handling the scenarios. The accuracy of these models was the extent to which teams picked the best approach. The degree to which the model was shared was how much members agreed in their responses to the questionnaire.

Other researchers use more complex methodologies in which the primary components of the group task are identified and group members rate the similarity of each pair of components. Similarity ratings are then subjected to multidimensional scaling to generate a cognitive map describing how team members conceive of the group task. Mental models of group tasks are shared to the extent that team members hold similar cognitive maps. For instance, Smith-Jentsch, Campbell, Milanovich, & Reynolds, (2001) used this approach to measure the team mental models of navy submarine teams. Eleven critical task components were identified from performance appraisals. These included exchanging information (passing information, providing big picture summaries, seeking information from all available sources), communication (proper phraseology, brevity, clarity, and completeness of reports), supporting behavior (error correction, backup/assistance), and leadership (providing guidance, stating priorities). Concrete examples of effective and ineffective behavior were then generated for each of the eleven components and presented on 33 separate cards. Team members sorted the 33 cards into piles that represented categories that were meaningful to them and then labeled each category. The measure of the extent to which mental models were shared among team members was based on the similarity of their card sorts. The accuracy of the team's model was the extent that the team's shared mental model corresponded to expert sorts of these same tasks. The researchers found that teams were more likely to share a mental model of teamwork the higher ranks held by team members and the longer they had served in the navy.

A more complex approach to measuring team mental models is to generate group and task attributes believed important to group functioning and then have group members rate the interrelation among the attributes. An example is an experiment in which 2-person laboratory teams played a military tank simulation game requiring them to seek and destroy enemy tanks (Banks & Millward, 2007). In each team one team member controlled the tank's movement and the other team member controlled the tank's gun. Each team member viewed a computer screen depicting terrain that varied and was tasked with destroying six enemy tanks. A high degree of coordination was required in which the driver and gunner of the tank first spotted enemy tanks and the driver then navigated toward these tanks. After the gunner fired the cannon, the driver executed

maneuvers to avoid destruction by the enemy. Team mental models were measured for the team task and team behavior. The seven task attributes were speed, night vision, range finding, map reading, finding enemy, shooting, and steering. The seven key team attributes were amount of information, quality of information, coordination of action, roles, liking, team spirit, and cooperation. To assess the team mental models team members rated how each pair of attributes was related on a scale that varied from strong negative relationship to strong positive relationship. The extent to which the team members shared a mental model was computed with an index of how similarly members judged the correlation of task and team attributes. The accuracy of the team's mental model was computed by comparing the team members' rated relationships among task and team components with an expert's ratings of these relationships. In addition to these cognitive maps of the team and task components, members also described how they performed their tasks by providing written descriptions of the procedures used. The similarity of member descriptions reflected the extent to which members shared a model of procedural knowledge used in performing the computer game. Groups in which members possessed accurate mental models and shared these models were more effective than groups in which members possessed less accurate or diverse models.

The positive relation of mental model accuracy and sharing to group performance has held up across studies. A meta-analysis of research shows a corrected correlation with team performance of .30 for congruence in team mental models and .34 for accuracy of team mental models (DeChurch & Mesmer-Magnus, 2010a). In a second meta-analysis, these same researchers report that the extent to which mental models are shared was positively related to group performance regardless of the method used to measure the mental models (DeChurch & Mesmer-Magnus, 2010b).

Groups appear to perform better to the extent that they share an accurate mental model of team and tasks, but there is some research showing that the benefits depend on the situation. Kellermanns, Floyd, Pearson and Spencer (2008) measured the mental models of university faculty, the similarity of these models within departments, and the norms in the departments for constructive confrontation on issues. The authors report that where there is a strong norm for constructive confrontation, the decision quality of the department is lower when faculty have a shared mental model than when the faculty in a department do not share a mental model. The reverse is found when there is a weak norm for constructive confrontation. In these departments having a shared mental model apparently improves the quality of the decision making. According to the authors, a norm for constructive conflict allows the group to take advantage of their differences. Another study reports that teams having members who perform distinct roles are more effective if the members share declarative mental models than if they share procedural models (Banks and Millward, 2007).

What social norms emerge?

Group norms are the informal, socially shared standards against which the appropriateness of behaviors in groups is evaluated (Birenbaum & Sagarin, 1976; Cialdini & Trost, 1998). There are as many potential norms as there are behaviors,

attitudes, and ways of thinking that can occur in a group. A group could have norms for member productivity, topics of conversation, dress and appearance, helping of fellow members, and demeanor, to name only a few. Norms define what is appropriate, what is inappropriate, and in some cases, define a range of behavior that ranges from appropriate to inappropriate. They are communicated both through the explicit statements by fellow members (e.g., “you are not to criticize fellow members to outsiders”) and implicit and subtle behaviors that signal what is acceptable and unacceptable (e.g., frowns, smiles, eye contact). Social norms are learned in some cases through observing how other group members behave and the consequences of these actions and in other cases by the explicit instruction of fellow group members.

Another distinction is between personal norms, which are beliefs held by individual group members with regard to how he or she should think, act, and feel and those norms that are shared by group members. Individual members acquire personal norms through past experience and important issue is the extent to which these personal norms are consistent with and are modified by the social norms that emerge within the group. For instance, norms exist in work groups for the level of productivity that individual members consider appropriate. If members go too far above or below that level of productivity, they are criticized or in some other ways punished by their fellow group members. If members are highly motivated and believe that they should work very hard and produce as much as they can, the social norms of the group for restricted productivity can clash with personal norms and create a dilemma for both the individual and the group. Groups that are highly cohesive and possess high levels of power over members can move their members away from personal norms in the direction of group norms. Weaker groups fail to influence members and personal norms prevail.

Group norms are discussed here as structures that emerge from inputs and processes and mediate and moderate the effects of inputs on outcomes. One could just as easily treat norms as inputs. A pre-existing group that tackles a new task or enters into a new performance cycle is likely to bring with them norms that have emerged from previous interactions. In these situations, pre-existing norms are inputs. The norms that emerge vary with the stage in the development of group. A common norm early in a group’s existence is that members treat other members with formal politeness and avoid conflict and open criticism. Later in the group’s development, norms emerge that allow or even encourage open criticism and constructive conflict.

One type of norm that researchers have examined extensively in recent years is the norm for extra-role or prosocial behavior. The reason that this particular norm has received so much attention is that there is increasing recognition that the effectiveness of groups and individual members requires that they go beyond the minimal requirements of the work. Organizational citizenship behavior (OCB), altruism, helping, and cooperation are examples. The essential characteristic is that employees initiate these behaviors. This is in contrast to in-role behavior, which is behavior that is expected and required as part of the formal duties of the job.

Researchers in one study found that norms for cooperative behavior among group members appear to mediate the relation of personality composition of a group and helping behaviors exhibited by group members (Gonzalez-Mulé, DeGeest, McCormick, Seong, & Brown, 2014). In this study, members of 102 research and development teams were surveyed to measure their extraversion and their perceptions that there is a group norm for cooperation (e.g., “People are willing to sacrifice their self-interest for the benefit of the team”). Also, supervisors rated the frequency with which members of the groups exhibited helping (e.g., “Helps others who have heavy workloads”). Extraversion was shown to predict the extent to which groups exhibited altruism and cooperation but this effect was mediated by norms for cooperation. The higher the extraversion of group members the more likely they were to have norms for cooperation and in turn, to the extent there were norms for cooperation, the groups were more likely to engage in helping and cooperation.

Group members appear to adopt extra-role norms as the result of observing others in the group engage in extra-role behavior that lead to group success (Ehrhart & Naumann, 2004). Also influential in shaping cooperative norms are manager communications that extra-role behaviors are expected and contextual factors that encourage cooperation such as interdependence, task difficulty, group cohesiveness, and communal group relations. Researchers in a survey of employees in an organization report that group norms for cooperation shape personal norms, and these personal norms mediate the effects of the group norms for cooperation on actual cooperation at the individual level (Ehrhart & Naumann, 2004). Several variables appear to moderate the impact of norms on cooperation. Norms dictating that members cooperate lead to more helping and cooperation the more members identify with the group, the stronger the norm, the more attraction to the group, and the more the member exhibit self-monitoring and the manager showed transformational leadership.

Norms also play an important role in determining whether demographic diversity harms or benefits the group. Chatman & Flynn (2001) report that cooperative norms appear to partially mediate the effects of demographic diversity on individual performance. To the extent that employees perceive that there are norms encouraging cooperation, the negative effects of demographic diversity on individual performance is diminished. Cooperative norms have a direct influence on employee satisfaction such that employees in groups with cooperative norms are more satisfied with their units.

An interesting lab experiment provides a demonstration of how norms within a group for politically correct discourse can improve the creativity of a group (Goncalo, Chatman, Duguid, & Kennedy, 2015; see figure 9.8). They assigned participants to either mixed sex or same sex groups. In half the groups a political correctness norm was activated by having the group generate examples of political correctness norm that they heard directly experienced on campus whereas in the other half there was no discussion of political correctness. Groups were then assigned the task of generating ideas for how to set up a business. Fewer ideas were generated in the mixed sex groups than in the same sex groups when no political correctness norms were made salient. However, when political correctness norms were made salient, the mixed sex groups generated more ideas than the

same sex groups. These results contradict the typical assumption that political correctness norms will inhibit creativity. According the authors, the uncertainty of how to interact in a mixed sex group inhibits creativity when there are no norms for political correctness and making such norms explicit is a way of reducing uncertainty and freeing the creative potential of the group.

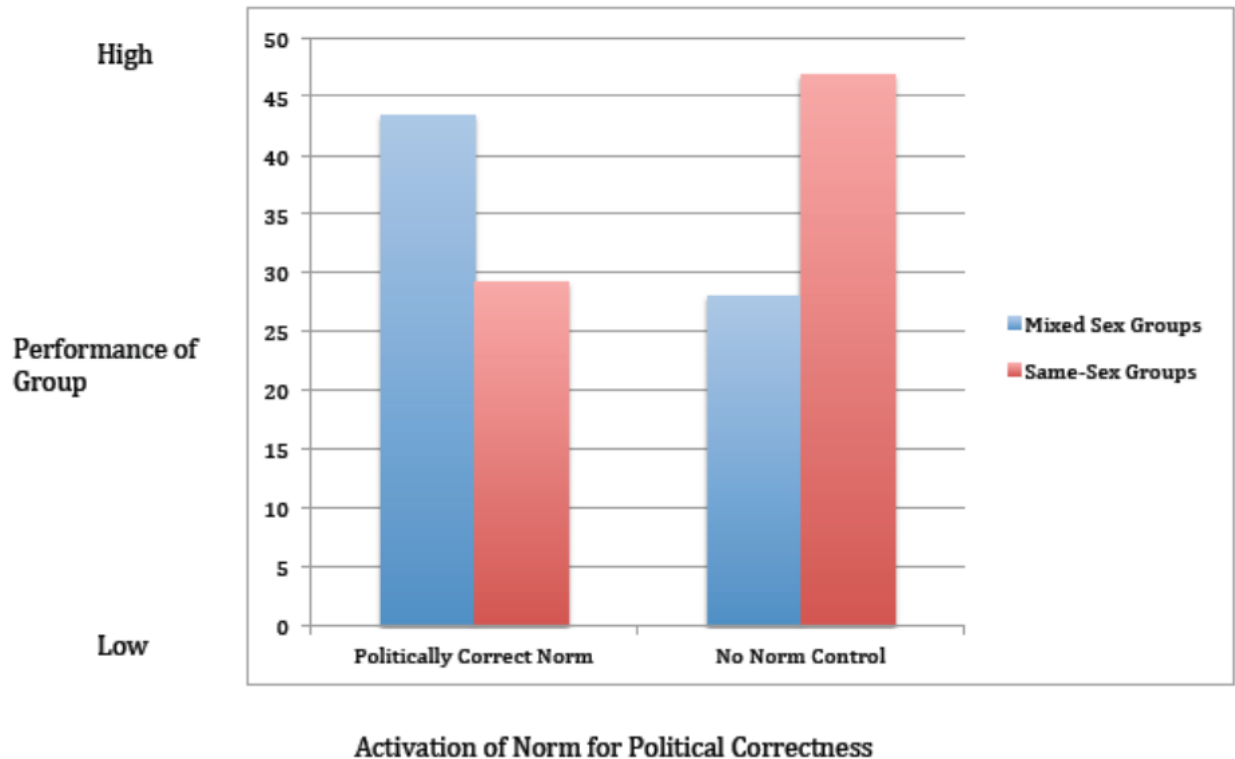


Figure 9.8: Performance in Generating Ideas in Mixed and Same-Sex Groups, with and without Activation of a Norm for Political Correctness

This experiment demonstrates how norms serve the important function of reducing uncertainty and developing trust among members of the group. If a group member is uncertain of whether fellow members will betray his confidence by revealing privileged information to outsiders, that member will have a hard time trusting them. In permanent groups members have an opportunity to interact and observe others in the group and as a result, norms emerge as to what is appropriate and inappropriate with regarding to discussing group events to outsiders. In a temporary group, however, members are only together a short time and may not see each again once the group has finished its work. How can trust develop in this type of situation? Meyerson, Weick and Kramer (1996) refer to the trust that can emerge in a temporary, ad hoc group as swift trust: “To trust and be trustworthy, within the limits of a temporary system, means that people have to wade in on trust rather than wait while experience gradually shows who can be trusted and with what: Trust must be conferred presumptively or *ex ante*.” (p. 7). Moreover, “Given those complexities, unless one trusts quickly, one may never trust at all. Ultimately, of course, knowing when to confer trust quickly, and when to withhold or withdraw it, may be crucial to the success of the temporary system” (p. 34). In global teams that are both



virtual and ad hoc the norms that allow trust to develop among group members is especially fragile (Crisp & Jarvenpaa, 2013). Group members must develop “swift trust” but it is typically unstable and readily withdrawn when the group encounters difficulties.

What interpersonal relationships emerge?

Members of a group do not simply interact but eventually form relationships with each other. The most obvious dimension on which relationships among members vary is affectivity of the relationship. In others, relationships in a group can range from strong positive attractions among members, through neutrality, to strong disliking. Relationships vary on other dimensions including closeness (i.e., the extent to which the members are bound and interdependent on one another), trust, authenticity, identification (i.e., the extent to which members share a common identity and identify with each other), formality (e. g., spontaneous versus rule driven), fairness, commitment, and mutual support.

Although these dimensions are distinguishable as separate relational constructs, there is merit in considering the general quality of interpersonal relationships. Social psychologists have given a lot of attention to the quality of interpersonal relationships (Reis & Collins & Berscheid, 2000), but I/O psychologists have mostly ignored this factor until recent years. That is changing and increasingly researchers and theorists in I/O are bringing attention to the benefits to group effectiveness of relationship quality among group members (e.g., Ebby & Allen, 2012). In the prediction and explanation of group effectiveness, relationship quality constitutes an interpersonal process and structure but can also serve as inputs, mediators, and moderators of other variables. The findings of laboratory research that groups made up of friends perform better than groups made up of acquaintances or strangers (Jehn & Shah, 1997; Parise & Rollag, 2010). The higher quality relationships in the friendship groups apparently leads to more commitment to the group and more cooperation among members than occurs in stranger groups.

Also, “Friends and former co-workers may understand the skills, styles, and abilities of each other in ways that may help them get organized and productive more quickly, and some of the trust, belonging, and camaraderie built in previous interactions may transfer to the new role-task environment” (Parise & Rollag, 2010, p. 893). It is important to note, that friendship also can encourage a lack of criticality, social loafing, and a variety of other dysfunctional processes. These dysfunctional consequences are discussed later in this chapter.

The quality of relationships among group members is usually measured with self-report questionnaires. One of the better measures is the team member exchange (TMX) scale. The items from this scale are listed below and give a sense of how people relate to each other in a high quality relationship:

1. When other members of my team are busy I often volunteer to help them out.
2. When I am busy, other members of my often volunteer to help me out.
3. I frequently take actions that make things easier for other members of my team.

4. Other members of my team frequently take actions that make things easier for me.
5. I frequently recognize the efforts of other members of my team.
6. Other members of my team frequently recognize my efforts.
7. I communicate openly with other members of my team about what I expect from them.
8. Other members of my team communicate openly with me about what they expect from me.
9. I frequently provide support and encouragement to other members of my team.
10. Other members of my team frequently provide support and encouragement to me.
11. I frequently suggest ideas that other members of my team can use.
12. Other members of my team frequently suggest ideas that I can use.

Similar to the social and task dimensions of group cohesion, there are two underlying themes in TMX one reflecting friendship among members and the other reflecting high quality relationships exhibited in the performance of tasks. A meta-analysis of the research using TMX reveals that groups with higher TMX have higher performance ( $r$  corrected = .25), satisfaction ( $r$  corrected = .43), and commitment ( $r$  corrected = .45), and lower intentions to turnover ( $r$  corrected = -.32) (Banks, Batchelor, Seers, O'Boyle, Pollack & Gower, 2014). Not surprisingly, TMX is closely intertwined with other interpersonal processes. Groups having higher TMX are more likely to state an intention to share information (Liu, Keller & Shih, 2011) and more likely to share leadership (Love & Dustin, 2014). Higher TMX groups are more cohesive (de Jong, Curseu & Leenders, 2014). Members of higher TMX groups are more likely to identify with and help other group members (Farmer, Van Dyne & Kamdar, 2015).

Some research suggests that the impact of interpersonal relationships is not necessarily symmetrical. The negative relationships in a group may poison the entire group even when positive relationships outnumber the negative relationships (Labianca & Brass, 2006). The impact of negative relationships on the group is stronger when the group members are closely tied together in a dense network and when there is high interdependence (Labianca & Brass, 2006). In a demonstration of how a few negative relationships can damage a group, De Jong, et al (2014) had members of 73 work teams go through a list of team members and evaluate their relationship with each other member by rating whether they liked or disliked the person. They found that in 32 of the 73 teams there was at least one negative relationship and that about 7% of the relationships were negative. To the extent that there were negative relationships, the team's cohesion was lower and in turn, performance was lower. However, two variables moderated the harmful effects of negative relationships. To the extent that there was high interdependence on the tasks performed and to the extent that the quality of overall exchanges with the team were positive (as measured by Team Member Exchange measure), the negative relationship had less impact on the group.

Points to ponder:

1. What is a group role? What are the various roles that emerge in a group? Which ones are beneficial to the group and which ones are likely to detract from the group's effectiveness?
2. Discuss the concept of a shared mental model and the implications for group effectiveness.
3. Describe a mental model that might exist for some aspect of a group's functioning. How would you measure it and what are the implications of the various attributes of the mental model for group effectiveness?
4. What are some of the norms at work in groups you have observed? How did these norms emerge and how were they enforced? Did people conform to the norms or was there nonconformity either in the form of independence or anticonformity? Why and what were the consequences?
5. Describe what characterizes a high quality interpersonal relationship and the impact on group interaction and effectiveness? As a group leader how would you try to develop high quality relationships among members in your group?

How cohesive is the group?

Imagine a group whose members are close to one another and believe deeply in the group's mission? Now imagine a group whose members generally dislike each other and seems on the verge of disbanding? These two groups reflect the extremes on the cohesiveness construct. The concept of group cohesiveness emerged from field theory in social psychology and was originally defined as the resultant of forces acting on people to keep them involved in the group and forces acting on them to leave the group (Cartwright & Zander, 1968). In other words, consider all the forces pushing people to stay and then subtract all the forces that encourage their leaving. The difference between the two forces is the resultant and is cohesiveness. More recent applications of cohesiveness have departed from this conceptualization and describe cohesiveness more in terms of the attraction of m The attractiveness of a group for its members is a primary force keeping them together, and can result from such factors as similarity in the personal characteristics of members, their success in achieving goals together, external threats from a common enemy, and the satisfaction of their individual needs (e.g., their affiliation needs) (Lott & Lott, 1965). The attractiveness of alternative memberships serves as a primary force to leave the group. If employees can better fulfill their needs or achieve important goals by working in other groups, then the employees are less likely to stick together than if there are few or no alternatives.

Most researchers over the last several decades have defined and measured cohesion in terms of two types of group cohesion (Johnson & Fortman, 1988). Social cohesion refers to a shared liking or attraction to the group and includes friendship among group members, mutual caring and support, and the pleasure that members take in associating with fellow members. Task cohesion is the shared commitment to the group task or goal and the shared motivation to achieve task goals. Although the two dimensions of cohesion are positively related, it is possible that a group has members who are attracted

to one other but do not share a commitment to the task. It is also possible that a group has members who are highly cohesive in their commitment to the task but are not mutually attracted to one another.

## Group cohesion

- Can be defined as the affect structure of the group...who is attracted to whom and how much.
- A highly cohesive group is characterized by a lot of mutually positive attractions among group members
- How does it affect process loss and gain and performance? It depends on the goal of the group.

## Factors Affecting Group Cohesiveness

- Group Homogeneity
  - ◆ Homogeneous
  - ◆ Heterogeneous
  - ◆ Slightly heterogeneous
- Stability of Membership
- Isolation
- Outside Pressure
- Group Size
- Group Status



Antecedents of cohesion. Several factors appear to influence group cohesiveness. Perhaps the strongest factor is homogeneity. A group consisting of persons who are highly similar on their demographics (e.g., sex, age, race), beliefs, personalities, and backgrounds is more cohesive than a group of dissimilar members. Groups that are stable are more cohesive than those in which members are rotated around to other units or the members stay with the group for shorter periods of time. A group that is isolated physically or organizationally and has few interactions with outsiders is likely to become more cohesive than where there are frequent interactions with outsiders. Outside threats or pressure can create cohesion, such as when a common enemy emerges and members must work together to defeat this enemy. A high degree of cohesion seems more likely to emerge from a small group than a large group. Lastly, it is easier to form a cohesive group when the group occupies a higher status position in the organization and members have a reason to be proud.

Effects of cohesion on pressures to conform. The immediate effects of increasing cohesion are that the members are more attracted to the group and value to a greater

extent group membership. The more attractive the group, the more members desire to receive the approval and avoid the disapproval of fellow members, and as a consequence, the more reward and coercive power of the group over members. Cohesiveness also increases referent power of the group over members as they attempt to assimilate the values of fellow group members. Cohesiveness is also conducive to the expert power of the group. A cohesive group can help reduce uncertainty about what is appropriate or inappropriate, true or false, and moral or immoral.

A variety of forces are associated with cohesion that can potentially increase the effectiveness of the group. Members of a cohesive organizations or units seem more likely to accept attempts of other members to influence them, less likely to blame the organization or unit for failures, and more likely to accept personal responsibility for their collective failures (Seashore, 1954; Schlenker & Miller, 1977). Members of cohesive organizations or units also appear more satisfied with the situation, more likely to interact in a friendly and congenial fashion with each other, and less likely to experience anxiety and stress (Greenbaum, 1979; Shaw, 1976; Shirom, 1976). Perhaps the most important of these forces is that cohesion increases the power of the group to enforce norms. Deviation from norms is a threat to a cohesive group and the majority will bring members in line with group norms so as to maintain the identity and viability of group. To accomplish this, members use nonverbal signs of approval and disapproval or more explicit pressures such as might occur when members instruct, persuade, or reward and punish other members in the attempt to get them to go along with group norms. High cohesion enhances the impact of these attempts and leads to higher conformity and fewer individual differences among group members (Seashore, 1954). Conformity and the accompanying pressures maintain the group by preventing competition for status and keeping the members focused on the norms of the group. Take, for example, a group that sets a goal of producing X widgets. Achieving this goal is likely to benefit the group to the extent that there is goal acceptance, the goal becomes a norm, and there are group pressures members to exert effort to achieve the norm. In a highly cohesive group, the motivation to achieve the group springs from a desire to win the approval and avoid disapproval of the group and can be much more effective means of motivating than threats or rewards originating from a supervisor.

#### Effects of cohesion on group effectiveness.

Several published meta-analyses report that cohesive groups are more effective than less cohesive groups. The results from one of these, summarized in table 9.1, shows that cohesion is positively related to a variety of positive outcomes including performance (Beal, Cohen, Burke, & McLendon, 2003).

A second meta-analysis employing a larger sample of studies reports a corrected correlation between cohesion and performance of .255 for social cohesion and a corrected correlation of .298 for task cohesion (Castaño, Watts, & Tekleab, 2013). A third meta-analysis includes 29 studies published between 1952 and 2006 (Chiocchio & Essiembre, 2009) and reports corrected correlations of .485 between social cohesion and behavioral performance, .201 between social cohesion and outcome performance, .359 between task

cohesion and behavioral performance, and .346 between task cohesion and outcome performance.

Variable Hypothesized to Moderate Correlation of Cohesion and Performance	k	N	$r_{uc}$	$r_c$
Performance Type				
Behavior	19	778	.27*	.30
Outcome	47	2,125	.15*	.17
Performance Measure				
Effectiveness	40	1,899	.16*	.18
Efficiency	31	1,337	.27*	.31
Component of cohesion				
Interpersonal attraction	43	2,049	.17*	.20
Behavior	10	482	.28*	.32
Outcome	31	1,446	.12*	.14
Effectiveness	25	1,187	.13*	.15
Efficiency	19	792	.24*	.28
Task Commitment	16	579	.25*	.28
Behavior	4	176	.28*	.30
Outcome	11	342	.24*	.27
Effectiveness	10	341	.21*	.23
Efficiency	6	238	.31*	.34
Group Pride	6	209	.24*	.26

k = number of correlations; N = number of participants;  $r_{uc}$  = uncorrected correlation weighted by sample size;  $r_c$  = corrected correlation; \* = confidence interval for the correlation excluded zero.

Table 9.1: Correlations Between Group Cohesion and Performance as a Function of the Type of Performance, Performance Measure, and Component of Cohesion

In a fourth meta-analysis the researchers report that the correlation of cohesion and team performance is higher (corrected  $r = .464$ ) on highly interdependent tasks than on low interdependence tasks (corrected  $r = .206$ ) (Gully, Devine & Whitney, 2012). There is some evidence that the positive correlation between cohesion and group performance reflects a reciprocal relation. Higher cohesion causes higher performance and higher performance, in turn, causes higher cohesion. However, a laboratory experiment with students suggests stronger support for cohesion causing performance than for performance causing cohesion (Mathieu, Kukenberger, D’Innocenzo, & Reilly, 2015).

Cohesion is positively related to performance but there are several variables that appear to moderate this relation. Time is one potential moderator. The relation of cohesion to performance grows stronger over time whereas the relation of performance to cohesion remains constant (Mathieu et al, 2015). Task interdependence is a variable that this text

has mentioned several times as an important variable, and it moderates the relation of group cohesion to performance. When the task is high on interdependence and requires coordination, communication and mutual performance monitoring the correlation between group cohesion and performance is substantially more positive than where the task is low interdependence (Gully, Devine & Whitney, 2012). A third moderator is the group's goals and the congruence of these goals with management goals. If group goals are compatible with management goals, then cohesion increases the effectiveness of employees in achieving these goals. If the goals are not consistent with management's goals, high cohesion leads to low performance as judged against organizational standards. Thus, increased cohesion improves performance in groups where there is a strong norm for high performance. However, cohesion lowers performance where there is a norm for low performance. In an early demonstration of this, Seashore (1954) reports that cohesion is indeed related to performance but only for those groups that hold high productivity norms. In those groups with a low productivity norm, cohesion is negatively related to performance. In a more recent demonstration of the interaction between group cohesion and group goals, group cohesion was positively related to group productivity in groups with high acceptance of management goals but was unrelated to productivity in groups with low acceptance of these goals (Podsakoff, 1997). In some cases, management actions can pose a threat to a work group that increase cohesion and induce norms that are counter to management interests. The work group's distrust of management can fuel a coordinated and energetic effort on the part of the group to work against the interests of the organization (e.g., Stoverink, Umphress, Gardner, and Miner, 2014).

#### Downsides to cohesion.

There are potential downsides to cohesion. Hardy, Eys and Carron (2005) surveyed athletes and asked for examples of what they would consider potential disadvantages of belonging to a team with high task and social cohesion. Remember that task cohesion refers to a situation in which people in the group strongly bond in their concern for the tasks they are performing. Among the potential problems they cite for high task cohesion are breakdown in relations as the result of competition, oversensitivity to criticism, and less enjoyment of the game as the result of obsession with the task, pressures on individuals to conform so as to not let down teammates, and less member contribution due to reliance on the best players. Among the potential problems of social cohesion are time wasting in which team members might fool around rather than practicing, difficulties in getting members to focus and commit to a team goal, difficulties in getting and giving constructive criticism, too much focus on socializing, and the formation of cliques within the team that isolate some members.

Perhaps the most vivid examples of the dysfunctional consequences of pressures to conform and deference to the pressures is associated with the groupthink syndrome set forth by Irving Janis (1972, 1982). Groups suffering from groupthink pressure their members into an unthinking conformity. He defines this phenomenon as "a mode of thinking that people engage in when they are deeply involved in a cohesive ingroup, when the members' striving for unanimity overrides their motivation to realistically

appraise alternative courses of actions (Janis, 1972, p 9). There are several features that Janis believe characterized a group suffering from groupthink. Two primary attributes are conformity to a strong leader who is often well-respected and liked, an illusion of unanimity in which the members believe that everyone agrees on the same decision, and mindguarding in which individual members check their own skepticism in the interest of maintaining unanimity.

Groupthink is more likely to occur in highly cohesive groups but there are other factors that combine with cohesion to cause the low level of critical thinking associated with this dysfunction. Groups vulnerable to groupthink are also insulated from outside views, have feelings of invulnerability and moral superiority due to past successes, are confronted with stress due to outside time pressures, are led by well-respected, strong leaders, and contain group members who serve as gatekeepers and keep outside opinions from disturbing the consensus.

The space shuttle Challenger disaster in the 1980s is often used as an example of how a group can make bad decisions due to groupthink. Here are a couple of videos illustrating how groupthink possibly entered into decisions that led to this tragedy.

<http://www.youtube.com/watch?v=qmViyNIIpls&feature=related>

<http://www.youtube.com/watch?v=xV25ol-NedQ&feature=related>

President John F. Kennedy's decisions in the Cuban Missile Crisis in the early 1960s is often used as example of how a leader can manage a group decision so as to avoid Groupthink. In deciding how to respond to intelligence that the Soviet Union has positioned nuclear missiles on Cuban, Kennedy took several actions. First, rather than isolating his cabinet members, he invited in a variety of experts with opposing views. He appointed his brother, Robert Kennedy, as a devil's advocate who would challenge the opinions expressed in the deliberations and President Kennedy himself often stayed away from the meetings to avoid biasing the discussion. These and other strategies were taken to avoid the symptoms of Groupthink while encouraging critical analysis. In the end, the decisions reached succeeded in getting the missiles removed from Cuba and avoiding what could have been a nuclear war.





*During the Cuban missile crisis, Robert Kennedy sought outside opinions and welcomed debate.*

Support for the theory comes from a study with student groups engaged in a strategic simulation of intergroup conflict (Rempel & Fisher, 1997). Consistent with the hypothesis of Janis that groups under stress engage in dysfunctional problem solving, large increases in perceived threat were associated with less effective problem-solving. All the groups in this study reported relatively high levels of cohesion, but those that showed larger increases in cohesion suffered larger decrements in problem solving.

Points to ponder:

1. Think of a highly cohesive organization or work unit that you observed or participated in. Now think of an organization or unit that was low on cohesiveness. Describe how the two differed and why?
2. Cohesiveness increases the power of the organization or work unit over individual members. What types of power are enhanced by cohesiveness?
3. Under what circumstances could cohesiveness benefit an organization and under what circumstances could cohesiveness inflict harm. Describe the two sets of circumstances and the dynamics at work in each.
4. If you were tasked with increasing the cohesiveness of an organization or work unit, what are the actions you would take to accomplish this?
5. What is Groupthink and what are some of the strategies that you as the leader of the group would take to avoid this problem?

Do members identify with the group?

In identifying with a group, people not only see themselves as members of a group but also assign to themselves the attributes of that group. In doing so, they perceive and feel at one with the group and draw sharp distinctions between the group to which they belong and other groups (Ashmore, Deaux, & McLaughlin-Volpe, 2004; Tajfel & Turner, 1986). The fate of their groups becomes their fate. When the group fails they feel the sting of that defeat personally and when the group succeeds they experience exhilaration, as if they personally had achieved the victory. The following items from one measure of group identification gives a sense of what it means to identify with one's group (Mael & Ashforth, 1992):

1. When someone criticizes (my group), it feels like a personal insult.
2. I am very interested in what others think about (my group).
3. When I talk about this (group), I usually say "we" rather than "they".
4. This (group's) successes are my successes.
5. When someone praises this (group), it feels like a personal compliment.
6. If a story in the media criticized (my group), I would feel embarrassed.

A study of sports teams identifies four dimensions associated with group identification (Dimmock, Grove, & Elund, 2005). The cognitive identification dimensions reflect perceptions of similarity to other group members and attributions of the characteristics of the group to one's self (e.g., "Attributes that define fans of my favorite team apply to me also" and "I am similar to other fans of my favorite team"). Affective identification reflects the feelings and emotion experienced by the group member when the favorite team succeeds or fails (e.g., "My favorite team's successes are my successes" and "I feel depressed when my favorite team fails"). Evaluative identification (personal) reflects the appraisal of the favorite team by members (e.g., "My favorite team is worth supporting" and "My favorite team has a lot to be proud of"). Finally, evaluative identification (other) reflects perceptions of how others value the team (e.g., "Others have a positive view of my favorite team" and "Most people consider my favorite team to be better than rival teams").

A recently proposed theory of identity fusion states that "Identity fusion occurs when people experience a visceral feeling of oneness with a group" (Swann, Jetten, Gómez, Whitehouse & Bastoam, 2012, p. 442). The union with the group is so strong among highly fused persons that the boundaries that ordinarily demarcate the personal and social self become highly permeable. These boundaries become so permeable that aspects of both the personal and social self can readily flow into the other. The flow of influence may move in both directions: Just as highly fused persons come to view themselves through their group membership ("My group membership is a crucial part of who I am"), they also perceive the group through their personal self ("I am an important part of the group"). These mutual influence processes encourage a strong sense of connection to the group, a sense that motivates highly fused persons to do as much for the group as they would do for themselves. People belong to multiple groups, and there is some internal

conflict experienced over which becomes the dominant source of identity. It is easy to see how one might give preference to groups consisting of family and friends. Identification with work groups is not guaranteed. A distinction is made in the early sociological literature on groups between primary groups such as family and secondary groups such as work groups. People are more likely emotionally bound to their primary groups but secondary groups often are guided by rules, procedures, and formalities. There are variations, however, in the extent to which people identify with their work groups. How can an organization foster work group identification and what are the consequences of this identification? Should management attempt to enhance work group identity? What are the benefits and the potential costs of doing so?

There are numerous potential upsides to a high level of work group identification. Among the possible mediators of these positive effects are differences in the social comparisons made by high and low identification members. Those who identify with the group seem more likely to compare their performance against outside groups rather than engage in comparisons of their personal performance with other group members (Flynn, 2005). When they do compare their performance with fellow group members, high identification members are less likely to experience negative affect and more likely to experience positive affect when fellow group members perform better than they do (Brewer & Weber, 1994; LePine, 2003). Those who identify with their group also seem less likely to experience envy with regard to high performing members and less likely to victimize these members (Kim & Glomb, 2014). Members with low work-group identification and high levels of envy are more likely to undermine the efforts of fellow group members (e.g., badmouthing them behind their backs, giving them the silent treatment) (Duffy, Scott, Shaw, Tepper, & Aquino, 2012).

Members who identify with the group take pride in group successes without envying the achievements of individual group members. They feel the pain of the group's failures, want to help the group do better, and perceive their fellow group members as less likely to free ride. As a consequence, they also are more likely to act in a way that benefits the group. There is evidence from laboratory and field studies in a variety of settings that higher group identity is associated with increased efforts to achieve group goals, help other group members, and coordinate their actions with the group (van Knippenberg, 2000).

1. Employee self-reports of identification with their work groups are positively related to self-reports that they are highly motivated and involved in their jobs and identify with their organizations (van Knippenberg & van Schie, 2000).
2. Participants working in the presence of another group and wearing a uniform identify more with their groups and subsequently perform better on tasks than participants not working in the presence of another group and not wearing a uniform (Worchel, Rothgerber, Day, Hart & Butemery, 1998).
3. In groups in which there is low group identification, the participants work harder to the extent that they expected others to work hard (van Leeuwen & van Knippenberg, 1999 and reported in van Knippenberg, 2000). However, in groups

in which there is high group identification, participants work at a high level regardless of their expectations for how much effort others exert.

4. Group identification appears to transform the goals of participants so that the goals of the collective supplant the goals of the individual (De Cremer, Van Knippenberg, Van Dijk & Van Leeuwen, 2008). When members must decide how much of rewards they receive for task performance to the group, the degree to which they identify with the group and their collective vs individualistic orientation interact in their effects on how much of their personal rewards they contribute to the group. When there is a high level of group identification, members with a cooperative orientation contribute as much as those with an individualistic orientation. When there is a low level of group identification, members with an individualistic orientation contribute less to the group than those with an individualistic orientation.

5. Groups given specific difficult goals perform better than groups given do your best goals, and this effect is mediated by the degree of identification with the group (Wegge & Haslam, 2007). Specific difficult goals only increase performance to the extent that the members identify with the group.

6. Trade union members who strongly identify with their unions are more likely to participate in union activities than members who have low identification, especially when participation is framed in terms of fighting to deal with the threat of management (Veenstra & Haslam, 2000).

7. Group identity can buffer the effects of failure such that high identity groups redouble their efforts and commit themselves to achieving goals in response to failure whereas low identity groups reduce their efforts (Jackson, 2011).

8. Cues that signal the potential failure of the group appear to lead to greater efforts from those who highly identify with the group, whereas the same cues lead to less effort by those who do not identify with the group (in constructive conflict and avoid dysfunctional conflict (Fishbach, Henderson & Koo, 2011).

Do not jump too quickly to the conclusion that high work-group identification is always a positive. As in the case of group cohesion, much depends on the norms and goals of the group. If the group's goals are aligned with those of the organization, higher work-group identification is more likely to lead benefit the achievement of organizational goals. If the group's goals are unrelated or negatively related to organizational goals, work-group identification can constitute a liability. Evidence of this comes from a meta-analysis showing that commitment to the workgroup is positively related to satisfaction with the group and going beyond the group role to contribute to the group (Riketta & Van Dick, 2005). The authors suggest on the basis of their findings that "strong identification with the workgroup might not always be beneficial for the organization as a whole. Because identified and committed group members internalize the groups norms to a greater extent, they are also more likely to follow these norms even if they are in conflict with those of the larger organization...Similarly, teams with strongly (versus weakly) identified members may engage more often in forms of social behavior (e.g., bantering, bullying) that subvert a range of organizational norms" (p. 505). Even when commitment to the organization remains high, high levels of work-group identification can lead to failures in critical thinking such as occurs in the group think syndrome. Another potential drawback

is if work-group identification detracts from efforts to build cooperation among groups in an organization. When higher identification with one's group goes hand-in-hand with devaluation of other groups, high group identification can hinder cooperation with these out-groups and worsen already bad intergroup relations (Jackson, 2002).

Points to ponder:

1. Describe the types of group identification you have observed in others or yourself. What were the consequences of the identification for the effectiveness of the groups and the individuals who possessed these identities?
2. As a leader of a group how would you attempt to inculcate a strong group identity among group members?
3. How can a group identity benefit a group and how might it hinder a group and detract from effectiveness?
4. What is identity fusion? Under what conditions do you think it is most likely to occur?

### Interventions to Improve Group Performance

There are three major categories of interventions for improving group effectiveness (Buljac-Samardzic, Dekker-van Doorn, van Wijngaarden & van Wijk, 2010). Some interventions attempt to directly change interpersonal processes and emergent group structures and attempt to modify these processes and structures. These include guided reflexivity, training, process consultation, and team building. A second category consists of the tools, technologies, and aids that facilitate problem analysis, decision making, and group processes. These include computer mediated communication, group support systems (GSS), and structured problem solving and decision making tools. The third category consists of interventions that target the context of the group. These include group goal setting, feedback, incentives, and participation in decision making.

### Interventions that target group processes

Team training, team building, and process consultation all directly target interaction processes. Each attempts to improve the way members relate to each other on one or more of the interaction processes discussed in this chapter. Some experts in the field distinguish among them by pointing out that team training targets specific objectives or competencies, whereas team building and process consultation are more general interventions in which an acting group reflects on its interactions (e.g., Kozlowski & Ilgen, 2006).

#### Team training.

In a review of interventions to improve team functioning in health contexts, training was identified as the most common intervention (Buljac-Samardzic et al, 2010). Team training to improve group functioning usually involves taking the group members outside the normal work context and instructing them in the knowledge, skills, and attitudes crucial to effective teamwork. Training programs come in a variety of forms. Some

training is conducted with the individual members, whereas other programs focus on the intact team as a whole. Training also can make use of one or more methods including simulations, lectures, discussion, role plays, and case studies.

Two specific examples of team training that appear especially effective are crew resource management (CRM) training and team cross-training. CRM originated as a means of avoiding accidents due to failures of coordination within airplane crews. It is defined as “a management system which makes optimal use of all available resources—equipment, procedures and people—to promote safety and enhance the efficiency of flight operations” (Safety Regulation Group, 2006). CRM training has expanded beyond aircraft crew training into a variety of work settings. For example, a CRM program used to improve team functioning in automobile assembly crews includes a two-day course involving interactive tutorials and lectures on the various factors that contribute to errors, skills in communicating to avoid these errors, and teamwork skills. (Marquardt, Robelski & Jenkins, 2010). Additionally, group members perform a simulated version of the task and receive feedback and instruction on team functioning. In cross training the group members learn the tasks performed by other members of the group and in some cases the tasks performed outside the group. The objective is to develop greater flexibility within the group and to enable the group to assist each other during periods in which individual members are overburdened.

A meta-analysis of the research evaluating the effects of training interventions shows that training is moderately related to cognitive, affective, and performance outcomes (Salas, DiazGranados, Klein, Burke, Stagl, & Goodwin & Halpin, 2008). Groups that receive training have higher performance, more positive cognitive and affective outcomes, and more positive interpersonal processes. This is shown for training programs that focus on task skills (corrected  $r = .35$ ) and interpersonal skills (corrected  $r = .38$ ) as well as for training programs that involve a mix of task skills and interpersonal skills (corrected  $r = .40$ ). A moderating effect is shown for group size in which the effects of training are larger for large groups than for small or medium size groups. The two most effective types of training are crew resource management (CRM) training and cross-training.

Although training is an effective intervention in building group effectiveness, there are questions remaining about the content and implementation of the training. For instance, high reliability training is given to groups operating complex, high risk technologies to prepare them for dealing with crises. Typically, the groups are given simulations in which they must deal with nonroutine but realistic scenarios. An issue is whether crews are best trained to follow standardized procedures or whether the training should emphasize flexibility and encourage deviations from standardized procedures. The findings of an experiment with nuclear power plant control room crews show that more effective crews rely less on standardized procedures in simulation training than the less effective crews. The authors also conclude that high reliability training should encourage for some teams “interaction that is briefer and involves fewer actors and less back-and-forth communication” (Stachowski, Kaplan, & Waller, 2009). This goes against the typical advice that high reliability training should encourage all team members to participate in the diagnosis of crisis situations and decision making on how to deal with the crisis.

Another issue is whether training to instill teamwork competencies should use intact groups that are trained as groups or whether such training should target individuals who are the members of the team. Cannon-Bowers, Tannenbaum, Salas, and Volpe (1995) suggest that to the extent that the team-work and task competencies are specific to the task or team context, training should use teams as the participants. To the extent that these same competencies are more generic and can generalize across contexts, individuals are appropriate as the participants.

### Guided reflexivity.

Groups can fail because they lack criticality in their collective information process, develop inaccurate or idiosyncratic mental models, or do not learn from their experiences. Guided team reflexivity interventions avoid these problems by making sure that group members engage in the interpersonal processes conducive to critical thinking, learning, and the formation of accurate, shared mental models. Guided reflexivity interventions vary in what they include but a common element is that members reflect upon and learn from past experiences. A simple form of reflexivity intervention is having groups take a time-out from the task and think about what they have done (Okhuysen, 2001). Group-initiated pauses to reflect can occur naturally at the midpoint of a group's work (Gersick, 1989) or as a consequence of interruptions, feedback, or structured interventions to improve group effectiveness (Schipper, Edmondson & West, 2014). More elaborate reflexivity interventions require teams to evaluate their work, reflect on what has occurred and what might have been, and develop alternatives for future action.

The research evaluating structured reflexivity has generally supported this type of intervention. In a laboratory experiment with student teams, participants performed a hidden profile task in which each group member possessed some information that was shared with all other members and other information that only he or she possessed. Some groups were assigned to a structured reflexivity intervention in which as part of performing the hidden profile task they were to reflect on the expert knowledge held by members, review their previous performance and consider alternative strategies, and plan a new strategy for performing the task (Konradt, Schippers, Garbers, & Steenfatt, 2015). Groups assigned to reflexivity intervention were more likely than control groups to develop shared mental models, adapt to their tasks, and improve their task performance. In a field study a reflexivity intervention was used in surgical teams in which members of the teams were briefed and debriefed following action team learning procedures originally developed in the Israeli Air Force (Vashdi, Bamberger & Erez, 2013). In the briefings, surgical team members reviewed the procedures to be used, possible complications, and actions to be taken in the event of these complications. The debriefings included a review of what happened during the surgery, complications that the team encountered, the extent to which the surgical team had met their goals, and what they could have done to avoid these complications. The results supported the effectiveness of the intervention. The surgical teams that engaged in the action team learning spent less time in surgery than the teams that did not engage in the intervention, apparently as the result of more helping and workload sharing. These effects were more pronounced when the surgical task was more complex. In low complexity surgeries,

teams participating in action team learning had fewer adverse events during the surgeries than those teams that did not participate.

An important issue is whether the intervention is as effective when performed by individual group members as when performed by the group. Based on the research so far, it does not appear to matter. In a laboratory experiment that addressed this issue, college students performed a simulation of a military air-surveillance task requiring groups of three to collectively determining the threat level of planes moving through space (Gurtner, Tschan, Semmer, & Nägele, 2007). They communicated by means of e-mail and were structured so that one member served as the commander of the team and the other as specialists. Members of these teams were assigned to a reflexivity intervention that consisted of three phases. First, members reviewed their previous task performance and discussed how the group had organized their activities and conveyed information. Second, members considered alternative strategies for improving their performance. Finally, in the third phase, members developed and decided upon concrete ways of improving task performance. Team members participated in the reflexivity intervention either as individuals or as groups. In the control condition the groups discussed a topic unrelated to the task. The results supported the effectiveness of the intervention. Guided reflexivity led to improved group processes and higher performance regardless of whether the intervention was performed by individuals or as groups.

### Team building.

In team building, attempts are made to improve group functioning through helping members learn to work together and through changing structural factors (e.g., norms, patterns of interactions, roles) (Porter, Lawler, & Hackman, 1975). There are four current models of team building: Goal setting, interpersonal relations, problem solving, and role clarification (Salas, Rozell, Mullen, & Driskell, 1999). Team goal setting emphasizes the setting of objectives and the development of individual and team goals. In the goal setting team-building intervention, team members set goals and then engage in action planning to identify ways to achieve those goals. The interpersonal relations approach emphasizes an increase in team work skills, such as mutual supportiveness, communication, and sharing of feelings. Interventions are used that are intended to increase the trust that team members have in each other and their confidence in the team. Team problem solving emphasizes the identification of the major problems that confront the team. Team members generate solutions, plan the actions they will take in implementing the solutions, and evaluate the outcomes. Role clarification emphasizes increased communication among team members regarding their respective roles within the team. Members communicate to one another their expectations for themselves and others and thereby gain a better understanding of their and others' respective roles and duties within the team.

Typically, team building is not a single action but an entire process that includes elements of all four models (Dyer, 1987; Woodman & Sherwood, 1980). This process begins with a diagnosis in which the consultant works with group members to collect information, using interviews, observation, and questionnaires about how well the group works as a



team. Next, the data are summarized and priorities set as to what the group should attempt to change. A problem-solving process ensues in which the group arrives at possible solutions to the identified problems. As they engage in this problem solving, the consultant provides feedback and coaching on how members of the group relate to one another.

Based on meta-analyses of research, team building appears to generally benefit group functioning. One meta-analysis reports that team building is the most effective of all organizational development interventions for modifying team member attitudes (Neuman, Edwards & Raju, 1989). Another reports an overall correlation of .43 between the presence of a teambuilding and group performance (reported by Kozlowski & Ilgen, 2006). A third reports that team building alone had an average effect of .53 and team building combines with other interventions had an effect of .82 (Svyantek, Goodman, Benz & Gard, 1999). One might conclude from these apparently impressive results that there is no controversy over the effectiveness of team building, but the research so far has consisted of few well-controlled studies and limited use of objective measures of performance (Buller & Bell, 1986). The authors of one review conclude that despite the apparent support in the research for team-building "... we advise caution in the interpretation of this finding pending a broader base of empirical support" (Kozlowski & Ilgen, 2006). In short, the jury is still out on whether team building is really as effective as some of the extravagant claims in the literature suggest.

### Process consultation.

Kaplan (1977) define process consultation as "a method for diagnosing and acting upon the human processes of work groups. It is a mechanism by which the parties in a relationship, usually with the assistance of a consultant, attempt to discover and solve problems in their work together" (p. 347). Schein (1969) identifies several types of process interventions. With agenda setting, the attention of group members focuses on internal processes that are critical to task success but are usually ignored by the group. A consultant might meet with a group after each of their meetings and review with them observations of events that occurred: How did the leader handle the discussion? How did members deal with conflict? Were there hidden agendas? What task strategies did the members use? Survey feedback involves the use of a questionnaire or series of interviews to gather data on how members see their process. The results of the survey are then presented to the group for discussion in a survey feedback meeting. Through the discussion of the results, members identify problems that block successful performance and then generate solutions to these problems. The consultant usually guides them through this process. Finally, coaching of the group or members by the consultant is a third type of process intervention. The consultant might take a problem member aside, for instance, and attempt to counsel the member concerning his or her relations with the group. Team coaching is "direct interaction with a team intended to help members make coordinated and task-appropriate use of their collective resources in accomplishing the team's work" (Hackman & Wageman, 2005, p. 269).

There is some support for process consultation from a survey of team members in a Canadian public safety organization. Respondents indicated the frequency with which the team leader pointed out areas of improvement, suggested means of improvement, brought attention to positive aspects of their work, stated expectations, and encouraged the team members to find their own solutions to problems (Rousseau, Aube, & Tremblay, 2013). To the extent that team leaders engaged in these coaching behaviors, the teams were more innovative, more committed to team goals, and more supportive of innovation. Although there is some evidence in support of process consultation, few studies have evaluated the effects on organizational tasks. As was the case with team building, the jury is still out on the effectiveness of process consultation as an intervention (Kaplan, 1977).

Interventions that target the group context.

Rather than attempting to directly shape the interpersonal processes within the group, these interventions attempt to increase group effectiveness by modifying the conditions under which the groups work. These interventions include setting goals, providing feedback on achievement of those goals, rewarding the group for achieving goals with monetary incentives, and involving the group in decision making. As discussed in the motivation chapter, goal setting, feedback, performance contingent rewards, and autonomy can benefit individual performance by increasing the motivation of the recipient and by providing information on how to perform the task most effectively. Goal setting, feedback, rewards, and autonomy also appear capable of improving group performance.

#### Group goal setting.

Just as setting specific, difficult goals can improve the performance of individuals (see the discussion of goal setting in the motivation module), setting goals for the performance of the entire group also enhances group performance (Matsui, Kakuyama & Onglatco, 1987). The accumulated findings of several decades of research are consistent with the conclusion of the early research and clearly support the effectiveness of group goal setting as a strategy for improving group performance. Based on a recent meta-analysis of research involving 38 studies and 739 groups, the conclusion is reached that groups given specific, difficult goals have much higher performance than those given nonspecific or easy goals (Kleingeld, Van Mierlo and Arends, 2011). This is a robust effect that generalizes across a variety of task types, levels of participation, and levels of task interdependence. Why does the setting of specific, difficult group goals on group tasks improve group effectiveness? One laboratory experiment reports that groups performing a brainstorming task perform better if there is a specific difficult goal than if there is a do your best goal (Wegge & Haslan, 2005). Both cognitive and motivational processes are found to mediate these effects. Members of groups given goals identify more with the group, are more willing to compensate for the performance of other group members, value group success and failure more, and are more concerned with avoiding group failure. Clearly, just as discussed in the chapter on work motivation, an effective

intervention for improving group as well as individual performance is to set difficult, specific goals for performance.

There are limits to the benefits of goal setting. The authors of the meta-analysis also report that task interdependence moderates the effects of goal setting (Kleingeld, Van Mierlo and Arends, 2011). Goal setting for individuals within groups that are working on interdependent tasks undermines the performance of the group and is a poorer strategy of improving group performance relative to setting goals in which the focus is on maximizing group performance.

### Group feedback.

Surprisingly few studies address feedback as a separate intervention. An early review concludes that group feedback is an effective strategy (Nadler, 1979), but there are many questions about how to implement this strategy that remain unanswered. One such neglected issue is the relative impact of feedback on outcomes of the group's performance of tasks and feedback on how well they are working together (i.e., process feedback). Combining outcome and process feedback is seen by at least one investigator as the most effective approach to improving group performance but research is needed to fully evaluate this hypothesis (Nadler, 1979).

Although the research on group feedback is limited, research on feedback to individuals is extensive, and it seems likely that what we have learned at the individual level generalizes to groups. As is the case with feedback to individuals, outcome feedback to groups is a "double edged sword" in that it can harm as well as benefit task performance (Kluger & DeNisi, 1996, 1998). Ideally feedback focuses the attention of group members on the task and how they work together to most effectively perform the task. However, feedback can shift the attention of group members from the task to the self or ego. A shift in attention to the self can lead to concern with how the individual appears to others and attempts to take credit for successes and disassociate from failures.

Groups as well as individuals are prone to biased explanations for their performances. Attributing successes to internal factors such as effort and ability while minimizing internal factors as causes of failures is called a self-serving bias at the individual level. The same bias at the group level is called team serving bias. Meta-analyses have shown that team serving bias is robust across a variety of situations (Martin & Carron, 2012; Mullen & Riordan, 1988). "Blame contagion" occurs within a group when defensive attributions for group failures to external factors are passed from one group member to another (Fast & Tiedens, 2010).

To the extent that feedback leads to self-consciousness and biased explanations, group performance suffers as members become more concerned with how they appear to each other and engage in impression management rather than concentrating on their tasks. In a demonstration of these unintended consequences of feedback, efforts by management to clarify and stress goal attainment in project teams that were given outcome feedback were found to backfire and lead to poorer team performance (Unger-Aviram, Zwikael, &

Restubog, 2013). The authors conclude that “Feedback is an interpersonal process in which the manager provides information relating to the success or failure of processes and activities with respect to project goals. As such, individuals may take this feedback not only at its face value (relating to the task itself), but also interpret the success or failure to be attributed to oneself or to other team members (p. 593).”

Because of the potential adverse reactions such as team serving biases, it is best that feedback interventions are accompanied by guided reflexive interventions and structured debriefings. An example is the U. S. Army’s use of after-action reviews. Figure 9.9 provides a model for group after-action reviews (Villado & Arthur, 2013).

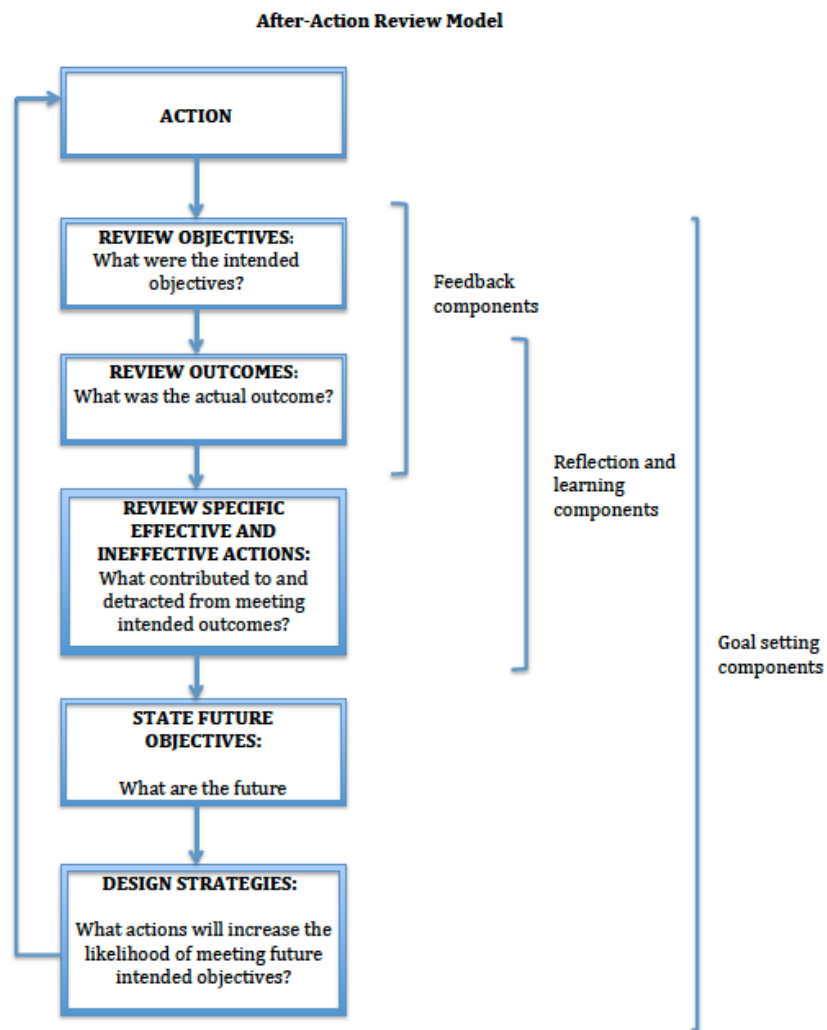


Figure 9.9: After-Action Review Model

An after-action review is defined as “a professional discussion of an event, focused on performance standards, that enables soldiers to discover for themselves what happened, why it happened, and how to sustain strengths and improve on weaknesses” (U. S. Army,

1993, p. 1). After action reviews are performed during or immediately after training on a task and consists of discussions by all trainees in which soldier, unit, and leader performances are analyzed and related to standards. Based on the discussion, soldiers generate strategies for improving their performance in subsequent training.

College students in a laboratory experiment performed a video game in four person teams and received either after action reviews or no review (Vilado & Arthur, 2013). Groups receiving the reviews performed better on the task, had higher team efficacy, more open communication, and higher cohesion than groups that did not receive after action reviews. Consistent with the findings from this experiment, a meta-analysis of the research on debriefings that they increased team performance by 25% and individual performance by 26% compared to no debriefing control conditions (Tannenbaum & Cerasoli, 2013).

### Group incentives.

A third contextual change that is often combined with goal setting and feedback is the rewarding of the group's performance contingent on effective performance of tasks. The research generally supports the effectiveness of group level incentives. In a meta-analysis of 146 studies, investigators concluded that group incentives do indeed promote higher performance (Garbers & Konradt, 2014). Interestingly, group level incentives appear to benefit performance to a greater extent when the group is smaller. This suggests that in a smaller group each individual links his or her own efforts to the group outcomes, feels more accountable, and is less likely to shirk or exhibit social loafing. Group level incentives are also more beneficial on complex tasks than on simpler tasks. To the extent that complexity reflects greater task interdependence this finding supports research showing the moderating influence of interdependence on the use individual and group rewards.

As discussed in the chapter on motivation, the research on group rewards suggests that when the task requires members to cooperate, rewarding all members for the successful performance of the task can improve performance above the level of performance found with rewarding members individually (Johnson, Maruyama, Johnson, Nelson, & Skon, 1981). Subsequent research shows that creating reward interdependence, in which the reward of one group member depends on the performance of other members, is a powerful means of increasing cooperation, helping, and information sharing among group members (Moser & Wodzicki, 2007).

A question that needs additional research is whether to reward group members equally or reward them on the basis of individual contributions to the group performance. The typical advice is to use a combination in which a portion of an individual's reward is based on the group performance and another is based on individual contributions to the group (e.g., Kozlowski & Ilgen, 2006). Barnes, Hollenbeck, DeRue and Harmon (2011) dispute this recommendation. Based on their findings, the authors conclude that "mixed incentives are not the panacea that some researchers have suggested. Rather than the best of both worlds, mixed incentives tend to place team members in a social dilemma that

results in some beneficial effects and some detrimental effects. This generally leads group members to pursue their own interests to a greater degree than those working under a pure group incentive system, such that they work harder (greater levels of individual taskwork and greater levels of speed) but less cooperatively (greater errors and less backing up behavior)” (p. 1631). Whether to combine individual incentives with group incentives and how to most effectively combine them remain fascinating research questions that undoubtedly will receive much more attention in the future.

### Group involvement in decision making.

In the typical hierarchical organization, the supervisor or manager makes decisions and the work group then complies by implementing these decisions. As early as the 1930s and 1940s, organizational theorists recommended that management involve workers in decision making as a way of increasing the effectiveness of the group. Group involvement in decision making can vary in the extent to which group members are engaged in the decision making. At the lowest level of engagement, managers and supervisors share the problem with group members and solicit information and ideas. At a higher level of engagement, managers and supervisors discuss the problem with group members and together they reach a mutually agreeable decision. At the highest level of participation, autonomous work groups are created in which management delegates to the group the authority and responsibility for making decisions. In an autonomous work group, members control their own activities with minimal or no supervision. An increasing number of organizations are delegating to teams of workers the decision-making responsibility and authority previously reserved for managers. Examples of self-managed work teams are found at the following link:<http://www.dol.gov/dol/aboutdol/history/herman/reports/futurework/conference/nonunions/appendix1.htm>

Autonomous work groups were introduced as part of the sociotechnical approach to job design and organizational development at the Tavistock Institute in England in the early 1950s. The sociotechnical approach attempts to integrate the technological, structural, and social components of the organization. Trist and Bamforth (1951) conducted the first major intervention of this type with a coal mine in England. In the traditional short-wall method, each of three shifts worked a small portion of the "face" in teams of two workers. When a shift ended, the two miners on the next shift took up where the previous shift stopped. The team was paid for its total productivity. After World War II, a new, more mechanized method of mining was introduced called the long-wall method. In this approach, each shift specialized in an aspect of the total task, with one digging the coal, another shoveling it onto the conveyor, and the third moving the mining equipment farther into the mine. The men were more specialized in their duties and were paid different pay rates. In addition, they worked at greater physical distances from each other.

Many problems arose as the result of the change to long-wall mining, including low productivity, high absenteeism, and high turnover. Trist and Bamforth attributed these problems to the incompatibility of the new technology with the social system. Working in small intimate groups helped reduce the anxiety associated with mining, but the long-wall

method isolated the miners and left them vulnerable to stress. Another consequence of the new technology was that older workers felt status incongruence as the result of being assigned lower pay rates than new hires. Finally, intergroup conflict emerged as each shift blamed the other for coordination problems.

The solution was to redesign the work so that the social system fit the technological system. Each shift of workers was organized into an autonomous work group and was given the responsibility for all phases of the mining process: digging, extraction, and equipment setup. Group members were cross-trained so that they possessed all the skills necessary. The group decided which members were assigned to which tasks. Moreover, members of a shift team were paid the same and were provided incentives based on the production of the entire team. This new arrangement appeared to decrease absenteeism and to increase production dramatically. Given the nonrandom assignment of employees to the groups and the absence of appropriate control group, one cannot conclude with certainty whether the sociotechnical intervention account for these differences. Nonetheless, the Tavistock studies gave birth to the Sociotechnical Systems Design (STSD) approach. STSD includes a variety of interventions but at the heart of most applications is the integration of technology and social systems. STSD is guided by five general hypotheses (Baxter & Sommerville, 2011):

1. Organizations consist of interdependent social and technical subsystems.
2. Organizations need to monitor, anticipate, and adapt to changes in the external environment.
3. There are always more than one means to achieve the goals of an organization (equifinality).
4. To either change the social subsystem and ignore the technical subsystem or to change the technical subsystem and ignore the technical subsystem is at best suboptimal and at worst courts disaster.
5. We need to optimize the operation of the social and technical subsystems.

Although the STSD approach does not necessarily involve autonomous work groups, one review of 134 experiments involving sociotechnical interventions concludes that the most successful were those that incorporated some form of autonomous work group in the design (Pasmore, Francis, Halderman, & Shani, 1982). There are several reasons that increasing the autonomy of work groups increase their effectiveness. By offering the possibility of greater control, autonomous work groups fulfill higher level needs of workers such as needs for self-esteem and self-actualization, thereby motivating them to work hard and persist in the pursuit of work goals. The group often possesses more information about how to perform the work than any one member or management. Consequently, an autonomous work group increases creativity and innovation by tapping this reservoir of information. An autonomous work group increases the flexibility with which members respond to and adapt to unforeseen changes. A somewhat cynical reason that an autonomous work group intervention appears effective is that supervisory and other positions are eliminated, thereby reducing costs (Wall, Kemp, Jackson, & Clegg, 1986). This explains why unions often resist this intervention. The work on autonomous work groups suggests that simply giving autonomy to a work group is unlikely to

improve performance unless the work arrangements target "critical levers." An example is a sociotechnical intervention at the Rushton Mining Company in Pennsylvania which was designed with the amount of time equipment was out of action because of maintenance and repair (Goodman, Devadas & Hughson, 1988). Autonomous work teams designed this critical lever in mind appeared to be effective.

The receptiveness of employees to autonomous work groups is likely to depend on the culture. Group members from countries that are considered individualistic such as the United States tend to have less positive attitudes toward working in groups than members from countries that are more collectivistic such as China (Kirkman & Shapiro, 1997). Accordingly, people in the individualistic national cultures such as the U. S. are more receptive to individual rewards as opposed to team rewards, working alone as opposed to working in a team, and making their own decisions without consideration of the group's welfare as opposed to making decisions with the team in mind. People in collectivist cultures value harmony, do not want to be singled out, and express more satisfaction with working in groups than working alone. Harold, Lee, Heo and Shin (2014) report on the basis of a meta-analysis of 96 studies that how well the person-group fit of employees is more strongly related to work attitudes and job performance in East Asian countries than in North American countries.

Another cultural dimension that is important to consider is power distance. Some national cultures value a clear separation between people on the basis of status and power and support hierarchical organizational structures, whereas other national cultures value egalitarianism, deemphasize status differences, and support flatter organizational structures. Argentina, India, Malaysia, Mexico, the Philippines, and Puerto Rico are among the national cultures that are high in power distance. Finland, Israel, Norway, and Sweden are among the countries that low in power distance. The U. S. falls in between and is characterized by a moderately low orientation to power distance. When group work requires the members to take responsibility and make their own decisions, such is the case in Self Managed Work Teams (SMWTs), the dominant values for power distance appear to influence receptiveness to groupwork. People from cultures high in power distance are less likely to accept group work that requires them to self-manage than people from cultures low in power distance. According to Kirkman, Gibson & Shapiro (2001)

“We saw examples of this phenomenon in the Motorola chip-making plant in the Philippines and the Genencor International industrial enzyme processing plant in Argentina. Employees in these facilities recalled feeling baffled when it was first explained to them that they would be making decisions more autonomously in a new work system. Even after the teams had been in place for some time, many team members in these countries expressed strong reservations about becoming a team leader even though this position provided extra compensation. Fear of confronting fellow team members was the primary reason given by employees (Kirkman, Gibson & Shapiro, 2001, p. 19).”



A third cultural distinction that affects the attitudes toward working in groups is the dimension of doing versus being. A doing orientation indicates that people value work activities over nonwork. In cultures dominated by this orientation, work is a central interest and people accept sacrificing personal and family interests so as to finish task projects and perform their work roles. In a being orientation, people value devotion to family and friends and will not commit to long hours if means sacrificing the interests of either. Countries high in a doing orientation include Japan, the Philippines, South Korea and the United States. Countries high on a being orientation include Argentina, Belgium, Finland, France, Mexico, and Spain. To the extent that groupwork requires group members to self-manage and to the extent that this self-management leads to more work and time away from friends and family, people from these cultures will resist group work.

A fourth cultural dimension is whether people in the country value and believe in free will as opposed to determinism. In a free will orientation people believe they can make their own decisions and control their own destiny, but in deterministic culture people tend to view their fates as driven by external forces that they have no control over. The free-willed countries are Argentina, France, Belgium, and the United States, whereas China, Japan, Singapore, and the Philippines are deterministic. When group work involves self-management, persons in a free will culture are more receptive to the group work than deterministic cultures. Kirkman, Gibson and Shapiro (2001) suggest that because France is both individualistic and high in power distance, it is the country that may be least open to self-managed work groups. On the other end of the continuum, Costa Rica is possibly the country is perhaps most open to self-managed work groups because it is both collectivistic and low in power distance.

There is meta-analytic evidence of the impact of culture in moderating the effects group autonomy (Seibert, Wang & Courtright, 2011). Empowerment of groups is positively related to task performance across a variety of cultures. However, empowerment has a stronger effect on task performance in Asia than in North America. The researchers in this particular study speculate that in collectivistic cultures, such as found in Asian nations, employees respond more strongly to cues that encourage them to identify with the group and the organization.

#### Programs that combine incentives, feedback, goal setting, and involvement.

An intervention called Productivity Measurement and Enhancement System (PROMES) involves not only feedback to the group but also goal setting, incentives, and a bundle of other activities. Research findings suggest that PROMES is an effective means of improving group performance (Pritchard, Harrell & DiazGranados, 2008). The benefits are demonstrated in a study in which the productivity of five units at an Air Force base was measured before and after implementing a goals, rewards, and feedback in the form of computer-generated reports (Pritchard, Jones, Roth, Stuebing, & Ekeberg, 1988). As indicated in figure 9.10, the introduction of group-level feedback increased productivity by over 50%. Goal setting increased productivity to a level that was 76% more than baseline productivity.

Interventions in the form of aids, tools, and technologies

Rather than targeting process directly or modifying the context, one could provide group members with guidelines, procedures, and communication media that maximize process gains and minimize process losses. A variety of problem solving techniques are included in this category. A second intervention is to use computer mediated communication and virtual teams to supplement or replace traditional face-to-face interaction.

### Structured group problem solving techniques.

Groups in organizations are frequently called upon to solve problems and another type of intervention provides a structured procedure for performing these tasks. For instance, group problem solving is a crucial component of total quality management (TQM) programs in which organizations strive for continuous improvement in work processes. Another variety of group problem solving is the quality circle (QC), which is sometimes part of a larger TQM effort and consists of a small group of employees that meets on a regular basis to come up with better ways of doing things in the workplace.

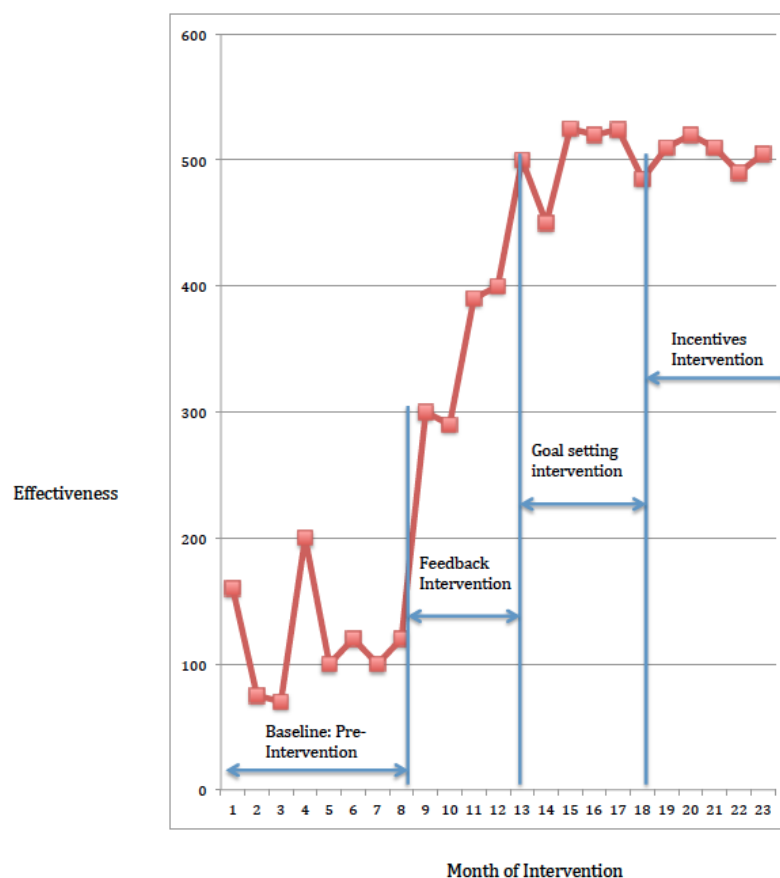


Figure 9.10: Effects of Feedback, Goal setting and Incentives on Effectiveness in a PROMES Intervention.

When problem solving is an important activity of the group, as is the case in QCs, several techniques of group problem solving have considerable value in improving group effectiveness.

\*Consensus decision making. The goal in consensus decision making is for the group to reach agreement on a decision that all can agree as to the rationale even if it is not their preferred alternative. It is important to note that a consensus decision is not necessarily a unanimous decision. As described by Hall and Watson (1971), members are given a set of guidelines for discussion that include the following prescriptions:

- (1) Avoid arguing just to win the argument.
- (2) Avoid agreeing just to avoid conflict.
- (3) Discuss the problem until all members can at least accept the rationale of the majority decision, even if they are not in total agreement.
- (4) Avoid use of conflict resolution techniques such as majority vote, averaging, or doing things because this is the way they have always been done.

\*Brainstorming. This procedure is intended to loosen inhibitions of group members and to encourage the flow of ideas. Members are instructed to generate as many ideas as possible, no matter how ridiculous. A basic guideline during the free-floating discussion is that members are not to evaluate ideas. Many of the ideas that members generate in such a session are intentionally farfetched and even ridiculous. Take, for example, the ideas for possible food products produced in a session held for the product managers in a major food company (Swasy, 1991). These include such gems as dog biscuits for humans with coffee breath and hot dogs made from fish (sea dogs). The hope in brainstorming is that the same release of inhibition that leads to such notions will also produce a few useful ideas.

Despite the frequent use of group brainstorming, it does not entirely succeed in relaxing the restraints against generating new ideas. A meta-analysis of research comparing the use of brainstorming by interacting face-to-face groups and nominal groups that brainstormed as individuals, the use of brainstorming with face-to-face interacting groups is less productive and generates lower quality ideas than brainstorming with individuals (Mullen, Johnson & Salas, 1991). Research has shown that in attempting to state their own ideas, members may block or interfere with the ideas of other members (Diehl & Stroebe, 1987). More unique ideas are produced if members first generate their ideas silently under brainstorming instructions and these individual contributions are pooled than if the group members interact using traditional brainstorming instructions (Bouchard & Hare, 1970; Campbell, 1968).

\*Nominal group technique. This technique is based on the findings that pooling of individual contributions was more effective than group brainstorming. In the nominal group technique members first generate ideas silently without discussing them. The ideas are then listed in round-robin fashion. Members can then ask for clarification, but they are not allowed to evaluate. In the final stages, the group votes on what they consider the

best three to five alternatives. After tallying the votes, additional rounds of clarification and voting may follow before the group arrives at a final decision. When compared with more interactive techniques, such as brainstorming and consensus decision making, the nominal group technique appears to yield better solutions (Delbecq, Van De Ven, & Gustafson, 1976; Mulen, Johnson & Salas, 1991) and more effective implementation of solutions (White, Dittrich, & Lang, 1980).

\*Preliminary planning. A potential source of failures in decision making and problem solving groups is the lack of a strategy. Many groups tend to rush to reach a solution without adequate planning. A common recommendation is that groups need set an agenda that lays out items for discussion and action and that allocates time for each item. The leader then needs to make sure the group stays on track and follows the agenda and manages interactions so that all opinions are heard and no one person dominates. For a couple of funny examples of group leaders with strategy problems check out: <http://www.youtube.com/watch?v=5a6wa20edws>  
<http://www.youtube.com/watch?v=32WjO7liHpl&feature=related>

Despite this apparent wisdom of group preliminary planning, the findings of one experiment conducted by suggests that preliminary planning is not always beneficial and may even harm group performance in some situations (Hackman, Brousseau, & Weiss, 1976). In this experiment, groups of students were given one of three sets of instructions: (1) spend a few minutes discussing and planning strategy; (2) avoid any preliminary discussion but jump right to solutions; or (3) no instructions. When members did not share the same task information, a preliminary planning discussion led to more effective task performance. If members all possessed the same information, however, preliminary planning actually detracted from the group's performance. It seems safe to say that the typical problem solving and decision making group tackles complex issues and members do not share all information. Consequently, engaging in preliminary planning is often the wisest course of action.

\*Dialectical inquiry and devil's advocacy. Both of these approaches attempt to improve creativity by forcing the group to consider alternative solutions. In group dialectical inquiry one subgroup develops a recommendation and a second subgroup presents the opposite recommendation and attempts to negate the assumptions of the first subgroup. In the devil's advocacy approach to group problem solving, one subgroup presents a recommendation and the second attacks this recommendation without presenting an alternative. In both approaches, the subgroups are expected to eventually agree on mutually acceptable solutions. The findings of a recent meta-analysis of the research evaluating these two techniques, provides evidence that devil's advocacy achieves better results than dialectical inquiry (Schwenk, 1990). However, there is some evidence that members of groups using either approach are less satisfied with the group and less accepting of the final decision than members of groups using consensus decision making (Schweiger, Sandberg, & Ragan, 1986).

\* Stepladder technique. In the group stepladder technique, a few members form a subgroup (the core) and the other members join them one at a time. As each new member

joins the core, he or she presents a solution to the problem and discusses it with the other core members. After all members have joined the core, the group arrives at a final solution. Rogelberg, Barnes-Farrell, and Lowe (1992) find that stepladder groups produce higher quality solutions than groups taking a more conventional approach. Moreover, the group decision using the stepladder procedure is better than the solution of the best individual in the group 56% of the time. In conventional groups, the final group solution is better than the solution of the best individual only 13% of the time.

### Computer mediated communication and virtual teams.

As already discussed, face-to-face groups suffer from a variety of potential process losses that prevent the group from achieving its potential. Technologies have emerged that purport to improve the effectiveness of group meetings by replacing face-to-face communication with computer mediated communication. A virtual group is defined as an “interdependent group working on a project across time and space relying on information and communication technologies (ICT)” (Lin, Standing, & Liu, 2008, p. 1032). Members in virtual teams use a variety of technologies to exchange information including electronic mail, computer conferences, electronic bulletin boards, electronic blackboards, teleconferencing, and phone conferencing. These new tools allow senders to transmit large amounts of information instantly across great distances to large numbers of people.

Virtual teams are increasing in frequency for some obvious practical reasons. The use of information and communication technologies is often the only alternative when people are separated geographically and must make quick decisions. Moreover, sending employees on long distance flights and then housing and feeding them so that they can meet for a few hours is often prohibitively expensive. The cost of a virtual team that uses a conference call, teleconference, or computer chat room to do its work is much lower. Because virtual groups are often cheaper, quicker, and necessary, it seems inevitable that they will become an increasingly dominant model of group interaction.

\* Potential benefits of virtuality. Even when a face-to-face meeting is inexpensive and easily implemented, a virtual team meeting may be the preferred approach. Increasing the virtuality of teams is described as a type of intervention that can minimize process losses and allow them to achieve their potential. In discussing the virtual team as an intervention, it is important to note that virtuality of a group is a continuum rather than an either-or distinction. Interactions among group members can be synchronous (i.e., members interact in real time as in a chat room or teleconferencing) or asynchronous (i.e., members interact in non-real time such as in email communication where one person sends a message and the recipient replies some time later). Also, the technologies used can come in the form of lean media in which there are no nonverbal cues such as email or in the form of relatively rich media that allow members to see each other and observe nonverbal behavior. Finally, group members can be situated in the same physical location or dispersed geographically and physically separated. The highest virtuality exists in a group in which members are geographically dispersed, interact asynchronously, and use lean media. The lowest virtuality exists in a group in which members are the same location, interact synchronously, and use richer media.

A benefit of computer-mediated communication is that participants differ less in the amount they participate in the exchange, possibly as the result of status distinctions being less noticeable. By contrast, in face-to-face meetings a few individuals (e.g., the boss, the older members, and outgoing individuals) are likely to dominate the process.



*Status distinctions are less noticeable on the internet.*

\* Potential downsides of virtuality. The lessening of status distinctions and the equalization of participation is a tremendous boon to the creativity of a group, but the anonymity responsible for these same factors also creates problems. The lack of nonverbal cues makes it more difficult for participants to determine how others feel about the issues under discussion. Consequently, individuals in computer-mediated meetings, as opposed to face-to-face meetings, take longer to reach agreement on issues and are less satisfied with the process. Siegel, Dubrovsky, Kiesler and McGuire (1986) demonstrate some of the inefficiencies of computer-mediated meetings. Students given a series of tasks to perform as a group and by means of linked computer terminals had a higher frequency of uninhibited behavior (or flaming) as reflected in instances of swearing, insults, and name-calling than face-to-face groups. A possible explanation, according to the authors, is that the anonymity and absence of feedback associated with the technology lead to feelings of loss of identity and a subsequent release of restraints.

The free exchange of information that result from a full implementation of computer-mediated communication might well prove a strain for organizations that operate as traditional hierarchical bureaucracies. One example comes from an incident at a large corporation. The chairman sharply criticized management and employees as feeling too secure and comfortable at a time when the company's performance was in decline (Carroll, 1991). The comments were made in a small, private meeting, and supposedly were not intended for widespread dissemination. Through electronic mail, however, the comments were immediately circulated throughout the company and eventually published in the newspapers. Computer technology in this case allowed immediate distribution across a large audience but also led to loss of control of the message. E-communication systems have tremendous and obvious benefits, but they also can magnify the negative consequences of communication breakdowns that occur in face-to-face communication. The effective use of e-communication requires that systems are designed to take into account social process in organizations.

\* Effects of virtuality on group effectiveness. With these issues, it is not surprising that the results of meta-analyses have shown negative effects for virtuality on team effectiveness. One of these meta-analyses examines four levels of virtuality (de Guinea,

Webster & Staples, 2012). The highest level is for a group in which members communicate via computer technology and are physically separated. Groups in which members communicate face-to-face in the same location are lowest on virtuality. The other two types of groups represent points in between on the virtuality scale. Task conflict increases and communication frequency and knowledge sharing decrease with the virtuality of the group. Also, the performance of the group and satisfaction of members both decrease as virtuality increase. Virtuality is positively related to conflict and negatively related to knowledge sharing, member satisfaction, and group performance. This effect is stronger in shorter duration groups than in groups that meet for a longer period of time. Contrary to these trends, however, virtuality is more negatively related to communication frequency in longer duration groups than in short duration groups. In general, members of virtual groups have less information about each other due to the lack of nonverbal cues. As a consequence, they are more likely to make errors in explaining their own and others' behaviors. These errors in turn lead to breakdowns in communication, conflict, and information sharing. The more a group has a chance to interact, however, they become more adept at communicating via the computer technology and norms emerge that allow members to avoid process losses. Also, with increased duration members identify more with the group and their motivation to ensure group success correspondingly increase.

In another meta-analysis, studies using the hidden profile procedure are coded on three levels of virtuality (Mesmer-Magus, DeChurch, Jimenez-Rodriguez, Wildman, & Shuffler, 2011). The hidden profile group procedure is one in which each group member is given some information that all group members possess as well as some unique information that only he or she possessed. The lowest level of virtuality is assigned to studies in which there was face-to-face interaction with synchronous communication among members. The next level of virtuality is assigned to teleconferencing, videoconferencing, and instant messaging where there is some degree of synchronicity of communication. The highest level is assigned to email and informational databases where there is asynchronous communication. High virtuality teams share more unique information than either low or face-to-face teams. This focus on unique information of the high virtuality groups reflects, according to the researchers, smaller status distinctions and equalization of influence. On the other hand, high and low virtuality teams are less likely to openly share information in general than face-to-face teams. General open sharing of information is more important to how well the high virtuality teams perform than sharing of unique information. According to the authors, "open information sharing is likely more directly related to team effectiveness in virtual teams because (1) virtual teams have fewer alternative mechanisms for the development of important psychosocial mechanisms that contribute to team performance and (2) there are fewer "substitute" processes in operation that might make up for ineffective team information sharing in virtual teams" (p. 217).

It seems apparent that replacing face-to-face interactions with computer-mediated communication is not a panacea. The use of computer mediated communication reduces some of the process losses associated with face-to-face interaction but at the cost of process gains. When implementing computer-mediated communication special attention

is needed to ensuring that it is not at the cost of coordination, cohesiveness, and relationship building (Lin, Standing, & Liu, 2008). The use of computer mediated communication also must be appropriate to the situation. Daft and Lengel's (1984) theory of media richness makes clear that some problems require a richer medium than provided by computers. Inappropriate use of computer communication is implicated, for example, in the Challenger space shuttle disaster (Weick, 1987). In this case, some of the engineers involved did not adequately express their concerns over the launching of the shuttle in cold weather in the messages exchanged through NASA's electronic communication network. Because research on the relative effectiveness of various media has only begun, many of the propositions of Daft and Lengel remain speculative. Initial research findings, provide interesting insights into the advantages and disadvantages of communicating by means of computers.

\* Virtual teams that are dispersed culturally. Globalization of work is now the norm and with globalization, reliance on virtual groups has increased dramatically. Cultural diversity within a team presents a special challenge to those attempting to implement virtual teams. In a face-to-face group there are both nonverbal behaviors and verbal cues that inform members about what is acceptable and unacceptable behavior. Moreover, the ability to see how fellow member are behaving and immediately respond allows the face-to-face group to correct deviations from norms. Members of face-to-face groups can interact informally outside formal group meetings allowing them an opportunity to develop trust and cohesion. By contrast, the norms are not as clear for members of virtual team members. As a consequence, members of culturally diverse virtual teams act according to norms, identities, and stereotypes that they bring to the group. The inability of virtual group members to interact on an informal basis outside formal group interactions hinders development of trust and cohesion. The ability to express emotion is restricted in a virtual teams relative to a face-to-face team as the result of the lack of nonverbal behavior. Yet, it is still possible to express emotion in a virtual team. For instance, one might express emotion by putting all letters in caps or including an emoticon. Emotions expressed via text or other cues in a virtual team are contagious and can spread rapidly among members (Cheshin, Rafaeli, & Bos, 2011). The nature of interaction in a virtual team makes it more difficult to take back or correct a display of emotion. In a face-to-face group, one can, upon seeing that the tone of the message evokes dismay, correct the message by saying "I'm sorry, I meant to say...." In a virtual team, the sender of a message having negative consequences may not realize the impact on others until long after the damage has been done. In a cross-cultural virtual team, the dangers of misunderstandings in emotional displays increases even more. In cross-culturally diverse virtual teams there appear to be even stronger norms for expressing positive emotions and suppressing negative emotions (Glikson & Erez, 2013).

As a consequence of the barriers that cultural diversity imposes, teams that are cross-culturally diverse require knowledge, skills, and abilities that enable them to interact with their culturally diverse fellow team members. Moreover, cross-culturally diverse teams that are virtual require a unique subset of these competencies. A survey asking respondents to rate each of a list of attributes reveals four dimensions that underlie the knowledge, skills and abilities necessary to achieve success in culturally diverse teams



(Krumm, Terwiel & Hertel, 2013): working conscientiously (e.g., To have clear professional goals and to work toward them systematically), coping with stress and ambiguity (e.g., To remain calm, even in difficult situations), openness and perspective taking (e.g., To view new and unfamiliar situations as an opportunity to learn), and knowing other cultures (e.g., To know the verbal/spoken customs of the other team members' cultures). In comparisons of respondents whose experience is limited to face-to-face teams and those with experience with virtual teams, the only dimension distinguishing the two types of teams is conscientiously working. The authors suggest that it is easier for face-to-face group members to monitor each other's behaviors and to ensure compliance with norms than in virtual groups. As a consequence, self-discipline is more important in virtual groups.

Points to ponder:

1. Describe each of the practical interventions used in improving group performance and consider circumstances in which each is most useful and circumstances that might lessen the effectiveness of the intervention.
2. Describe how you would conduct an after action review with a group you are leading. After action reviews are hypothesized to improve group functioning as a consequence of their influence on the shared mental models of the group. How might this occur? How else might an after action review benefit a group?
3. Describe guided reflexivity training. Discuss the potential overlaps between after action reviews and guided reflexivity training.
4. Discuss the origins of Cockpit Resource Management training and its applications to other types of crews.
5. Imagine that you are a process consultant using process consulting to improve a group. What are the processes you would address? How would you measure them and provide feedback to the group?
6. Goal setting and feedback were discussed as powerful means of increasing the motivation of employees to work hard and perform well. Do the same reasons that individual level goals and feedback benefit individual performance hold for group level goals and feedback? Are there additional factors that need to be taken into account at the group level?
7. What dilemmas do group level incentives create for group members? How can an organization provide group incentives in a way that avoids the problems and maximizes the benefits?
8. Describe the Trist and Bamforth classic study with autonomous work groups. What is the sociotechnical design approach to improving group effectiveness? Why are autonomous work groups so often part of the approach? What cultures are most receptive to autonomous work groups?
9. Describe PROMES and gainsharing as interventions to improve group effectiveness.
10. Have you participated in a group that performed a substantial amount of its work via the computer and internet? Describe your experience and the issues that a virtual group confronts.

## Conclusions

An increasing amount of evidence suggests that organizations should seriously consider forming and using teams rather than relying on individual workers. LePine et al (2008) found strong support for the hypothesis that higher levels of many of the team processes discussed in this chapter are associated with increases in group effectiveness and member satisfaction. The authors report that a one standard deviation increase in the overall team process translates into over a one-third standard deviation increase in team performance and nearly a one-half standard deviation increase in member satisfaction.

This chapter examines the nature and use of groups in organizations. The reader may not like to work in groups...many people do not...but will need to get over this aversion. Groups are a reality that are not going away. More organizations are relying on groups to perform work and fewer expect workers to act as lone rangers. Indeed, it is very likely that the reader will spend most of his or her working life as a member of a team, so it is quite important to ask how they can be improved. The input - process - outcome model is presented in this chapter as a framework for reviewing the research on what makes for an effective group. There are several conclusions that are warranted based on this research.

1. There is no ideal group size. The number of members assigned to a group depends on the tasks they perform, the leadership of the group, and a variety of other factors. However, it is clear that as group size increases, the potential complexity of relationships within the group and the demands on the leader increase.
2. A distinction is made between surface level composition factors and deep level factors. Surface level factors are visible and include sex, race, age, and tenure. They affect performance as a consequence of their impact on deep level factors such as the knowledge, skills and abilities required in the task.
3. So far the research has not identified a set of team KSAs that apply to all teams. The team KSAs appear to depend on the group and the group's situation.
4. All of the big five personality factors have a small to moderate relation to group effectiveness. Groups having members who are extraverted, agreeable, emotionally stable, conscientious, and open to experience perform better than those with members who are lower on these traits.
5. Another input variable that is fairly obvious is the attitude about working in groups. Groups made of people who dislike working in groups and having to perform tasks requiring cooperation and coordination of their efforts are not as likely to perform as well as groups consisting of people who are more pro-group.
6. Groups that are diverse do not necessarily perform any better than groups that are more homogeneous, although there is little evidence that diverse groups do worse. The only exception is functional diversity which appears to have a small positive relation to performance. There are several variables that appear to moderate the relation of diversity to performance. When diversity creates faultlines in the group it is more likely to harm performance. For instance, when diversity leads to subgroup formation that are based on social identities such as sex and race, it seems less likely to benefit performance than when the diversity leads to subgroup formation that is information based. Diversity appears to benefit performance to a greater extent on complex tasks than simple tasks.

Perhaps most interesting is the effect of diversity mindset. To the extent that members believe diversity is a positive, heterogeneity in group composition is more likely to benefit performance. To the extent they believe diversity is a problem, the more likely heterogeneity will harm group effectiveness. This suggests that efforts to win the hearts and minds of members should accompany creation of more diverse groups.

Mediating the impact of group inputs on group outcomes are the interaction processes among members as they perform their tasks.

1. Groups appear to perform better if they rely on normative influence using implicit, unspoken, and even unconscious influence attempts than if they rely on rational influence in which there are explicit attempts to influence through overt monitoring and criticism. It is particularly important that those with the most expertise wield the most influence. Unfortunately, this is often not the case.
2. Groups in which members share leadership are more effective than groups in which there is relatively little sharing. This does not mean that the formal leader of the group must give up power and influence. Instead, member sharing of leadership adds to the influence and power of the leader.
3. There are three types of group conflict: relationship, task, and process. Task conflict is often seen as benefitting group performance but the research shows that it can easily spawn less functional types of conflict. For task conflict to benefit performance it appears that conflict is need of careful management and kept to moderate to small levels.
4. A potential process loss is a lack of sharing among members. Research with the hidden profile procedure shows that members share the information they have in common but do not as readily share the information that is unique to each member. Even when it involves information that is irrelevant to the task, sharing appears to benefit the group.
5. Effective groups have members who coordinate their efforts. This does not occur automatically but requires hard work. Coordination comes as the result of explicit monitoring and feedback to other members. Eventually, effective groups are able to coordinate their efforts through more implicit and less overt behaviors.
6. Effective groups have members who help each other, coordinate their actions, and engage in altruistic acts. There are probably limits to how much of this occurs in a group, but most groups are far from having too much prosocial behavior. To encourage prosocial behaviors within a group, leaders need to set an example and encourage the formation of group norms that support these behaviors.
7. Effective groups are characterized by a positive affective tone characterized by optimism and positive thinking. Less effective groups are characterized by a negative affective tone. However, the effects of negative emotions are more complex and attempting to eliminate all negative affect in a group may backfire. As long as the group is characterized by a basic level of trust and good will, some negative affect may benefit critical thinking, vigilance, and problem solving.
8. Effective groups have members who are motivated to work hard for the success of the group. Group potency and group efficacy are especially important indicators of the willingness of members to demonstrate vigor and persistence on the performance of group tasks. It is important to note, however, that motivation to work for the group and identify with one's group membership does not necessarily mean that members will work

to achieve organizational goals. Perceiving that one is a member of a group and that others are working on a task can lead to social loafing and free loading. Finally, high levels of motivation especially when coupled with social anxiety can interfere with the performance of complex tasks.

9. Effective groups demonstrate reflexivity in which they reflect on their past successes and failures and attempt to improve. Efforts to learn and adapt go hand-in-hand with reflexivity.

10. Effective groups engage in transactive memory processes and as a consequence a collective memory for its past history.

Emerging from the social interactions among group members are social structures that are crucial to group effectiveness.

1. Effective groups have some members who engage in socioemotional roles. They maintain group integrity, engage in conflict resolution, attempt to encourage cooperation, and take steps to make sure that member needs are met. They also have members who engage in task roles. They bring expertise to the performance of tasks, initiate the organization of group efforts, and help coordinate member efforts. Ineffective groups have members who pursue purely self-oriented roles in which they attempt to pursue their personal agendas rather than group goals.

2. Effective groups possess accurate mental models that members share in common. Effective groups possess shared mental models for how to interact in the group and perform their tasks.

3. Effective groups have social norms that support many of the processes that this chapter has discussed as generally beneficially to group performance. Although the enforcement of social norms can be overt and coercive, an effective group is able to devote more cognitive resources to the performance of tasks because of the implicit influence of social norms.

4. Perhaps the most important of the social structures that emerge in effective groups are high quality, positive relationships among members. Although there is a potential downside in the form of groupthink and a lack of critical thinking, groups with members who trust and respect each other work more effectively than groups characterized by poor relationships.

5. Effective groups tend to be more cohesive than groups that are less cohesive. Again, there is a potential downside to cohesion, especially when it is associated with a lack of dissent and overconformity to the leader and group norms. Two dimensions are found for cohesion. One consists of task commitment and the other interpersonal attraction, but both have a positive relation to group effectiveness.

6. Effective groups have members who identify with the group. However, a strong group identification could work against organizational effectiveness to the extent that there is a lack of alignment between organizational and group goals.

A variety of interventions are used to improve group effectiveness. Some attempt to directly change interpersonal processes and structures. These include guided reflexivity, training, process consultation, and team building. Other interventions provide problem solving technologies, decision aids, and other tools. These include computer mediated

communication, group support systems (GSS), and structured problem solving and decision making tools. The third type of intervention targets the context of the group and includes group goal setting, feedback, incentives, and autonomous work groups.

There are two recurring themes in the discussion of the effects of inputs, processes, and structures on group effectiveness. The existence of critical-contingencies is one theme. The effect of inputs, processes, and structures depends on the nature of the task and the situation in which the group is embedded. Many of the inputs and processes have a more pronounced effect on performance in groups performing highly interdependent tasks. For instance, prosocial behavior is more beneficial to group performance when task requires a high level of cooperation. In some cases, a high level of a process that is beneficial on an interdependent task may harm performance on a task not requiring cooperation and characterized by a low level of interdependence. It is not always appropriate or effective to use teams to accomplish organizational goals. For instance, the management of an organization may call a collection of workers in an organization a team when in fact the workers perform their tasks individually and they are a team in name only. To treat this collection of independent workers as a team could at best constitute a waste of time and resources and at worst could harm performance. A primary lesson, frequently ignored in the rush to jump on the team bandwagon, is to first analyze the work to assess the critical contingencies and determine whether teamwork is needed.

The second recurring theme is the possibility of “too much of a good thing.” Cohesion, good relationships, prosocial behavior, sharing, and many of the other processes that are beneficial when they occur at a moderate level can become dysfunctional at very high levels. This seems likely when these “good” processes lead to a lack of criticality, information overload, overconformity, and low innovation.

Some skeptics warn against an overly enthusiastic use of teams and have called for some caution in the conclusions we draw from the team research for organizational effectiveness. Allen and Hecht (2004a, 2004b) criticize what they refer to as “the romance of teams” in which there is a “faith in the effectiveness of team-based work that is not supported by, or is even inconsistent with, relevant empirical evidence” (p. 440). Allen and Hecht (2004) attribute the romantic view that teams are almost always effective to the psychological experience of team members. Belonging to a team enhances the feelings of individual and team competency as a consequence of team membership. These feelings of competency in turn lead members to attribute their successes to individual and team efforts and deny responsibility for failure. These self- and team-enhancing perceptions are not always justified.

Since Allen and Hecht’s (2004a, 2004b) review of the team literature, the empirical support for the use of teams has increased. However, the primary point of Allen and Hecht’s criticisms is still valid. Most of the research is concerned with teams that are already in place. Few studies provide a control group in which teamwork was not used or that included manipulations of group processes. There is a reliance on subjective evaluations of the team’s effectiveness and self-report measures of group process. Often self-reports on both processes and outcomes are obtained from the same person and the

findings from these studies are especially vulnerable to method bias that can inflate effect sizes. Very few studies conducted in organizations use behavioral indicators of group processes or more objective measures of group outcomes such as performance. Few studies test for nonlinear relations between group processes and outcomes. Although groups that are relatively high on the various process and emergent structures discussed in this chapter are often thought to benefit while those groups that are relative low suffer, it is possible to have too much of a good thing (Grant & Schwartz, 2011; Pierce & Aguinis, 2013). Finally, we need to know more about how the relations of group processes to outcomes change over time. Groups mature and potentially decline with longevity, and it is possible that some of the effects observed are limited to specific stages of group development.

An article that original appeared in 1974, titled “Suppose we took groups seriously” (Leavitt, 1989), bemoaned the lack of research on groups in organizations. The same year, another article asked “Whatever happened to the group in social psychology?” and raised a similar concern with regard to research in social psychology (Steiner, 1974). The paucity of research on groups that existed then no longer exists. As the reader might surmise from the review in this and the two previous chapters, there is an explosion of research on groups. This reflects the increasing frequency with which organizations are using teams to accomplish work previously performed by individuals and the growing emphasis on teamwork. This is a trend that is accelerating and is reshaping how psychologists explain human behavior in organizations and the interventions they are proposing to improve organizational effectiveness. Organizations will have to make increasing use of teams in the future. Increases in the complexity of technologies, the interdependence of work arrangements, globalization of commerce, and a variety of other forces will place more pressure on organizations to make use of teams. Work that requires the heroic efforts of the lone wolf will become the exception rather than the rule. Consequently, the management of organizations will need to give careful attention to understanding the inputs, processes, mediators, and moderators that account for group effectiveness. An understanding of these dynamics will provide a solid basis for designing interventions to improve group effectiveness that target one or more of these variables as leverages.

The chapters on social processes, social structures, and groups/teams covered a variety of social behaviors that can influence the functioning of groups and organizations. The next chapter focuses on one particularly important type of social behavior: leadership.

## Chapter 10: LEADERSHIP



## Introduction

The topic this chapter encompasses all the other chapters in this text. Leadership is defined by all the tasks leaders perform as they attempt to influence people in the organization. The leader selects people to fill positions, designs the work that those hired will perform, and then trains, evaluates, provides performance feedback, motivates, and shapes the attitudes of those hired. Moreover, the leader's philosophy of how to run an organization and the assumptions held about human nature (e.g., Theory X and Theory Y) determine how a leader approaches these tasks. All of these topics are covered in this text and are encompassed by the topic of leadership.

Leadership is exercised in many realms of life including the business/corporate world, religion, education, and the military. Below are pictures of well-known leaders from each domain. Are they recognizable? What do they share in common in terms of their traits and behaviors, and what accounts for their successes and failures? These are the questions considered in this chapter.

### Political leaders



### Education leaders



### Corporate leaders





## Religious leaders



Not surprisingly, people attach great significance to the role of the leader in determining the success or failure of organizations. Consider the attention given in the United States to the top-level executives of large corporations. Most are richly rewarded with huge salaries; some write best-selling autobiographies, become guests on talk shows, and in other ways attain celebrity status. Chief executives are heroes when things are going well, but they are the villains when their organizations fail, as seen in the widespread criticisms of top executives in U.S. corporations during the latest recession that began in 2008. Some critics have gone so far as to blame most of our current social and economic problems on the self-absorbed leaders of today who have taken the place of the visionary leaders of times past (Bennis, 1989). Whether leaders today are less effective than leaders of yesteryear are debatable. That the future changes confronting our institutions will require leaders who can inspire commitment and creativity seems indisputable.

## The romance of leadership vs. a scientific approach

The prevalent view is that leaders possess special power and are the driving force of the organization. Meindl, Ehrlich and Dukerich (1985) call this the "romance of leadership". According to this popular view, leaders are the primary cause of the good and bad things that happen to an organization.



In contrast to popular notions about leadership, I/O psychologists and other organizational scientists tend to adopt a broader perspective and are more skeptical, with some even arguing that leadership is mostly in the minds of followers (Calder, 1977; Pfeffer, 1977). This chapter presents what scientific research has to say about leadership. The psychological research and theory have shown that leadership is important, but the work strips away much of mysticism and romance attached to the concept. The findings support a more balanced approach somewhere between the overly romanticized view and the complete rejection of the concept.

### A working definition of leadership

In its simplest form, leadership occurs when an individual influences the behavior and attitudes of others. Influence is at the core, but as the reader proceeds through the review of the research and theory, it will become clear that it is more than this. Before elaborating, a few comments on what leadership is not. Leadership is not the same as a leadership role such as management or supervision. People in these leadership *roles* in an organization are expected to have special influence in the organization, but they may not emerge as leaders in the sense of actually influencing others. Also, the reader should keep in mind that even though the research often focuses on those in official leadership roles, managers and supervisors are not the only people in an organization who exercise leadership. Another important distinction is between emerging as a person who is seen as a leader and influences other people (i.e., emergent leadership) and becoming an effective leader. In the former case, the person exercises influence, but in the latter he or she also achieves the goals of the group or organization. A quick review of history reveals numerous leaders who *emerged* as leaders who were highly influential but then led their followers to disastrous results. An example is U. S. General George Custer who successfully led his men into the Battle of the Little Big Horn in the 1800s but failed spectacularly.

## Leadership as incremental compliance

Katz and Kahn (1978) suggested limiting the term leadership to influence that comes from an increment in compliance, over and above the compliance the leader would achieve from routine directives. A manager who orders a group of workers already at work on an assembly line to "get to work" is NOT exerting incremental leadership. If the same manager is able to get these workers to go beyond their normal rate of productivity, this would qualify as incremental leadership.

Jacobs (1971) elaborates on this notion by distinguishing true leadership from the influence that results from being able to deprive another of rewards or to inflict costs, and the influence that results from the exercise of legitimate power (i.e., holding a position of leadership). True leadership is the result of a two-way interaction in which the subordinates comply because they have personal respect for the manager. The implication of both Katz and Kahn (1978) and Jacobs (1971) is that managers who wield incremental or true leadership are more effective than those who wield power, authority, or obtain compliance through routine directives.

## Leader vs. manager or supervisor

The term manager (or supervisor) is often reserved for an individual who influences others through the bureaucracy by enforcing the rules, rewarding and punishing, and monitoring performance to ensure procedures are followed. Managers (or supervisors) are essential to the organization and are mainly involved in the day-to-day administration of a position (Zaleznik, 1977). The leader, according to those who stress this distinction, is someone who is proactive, who goes beyond rewards, punishments, and authority to inspire, to motivate, and to creatively solve problems. Similar reasoning underlies recent work on the transformational, inspirational, and charismatic approaches to leadership discussed later in this chapter. Based on these views, an addition to the previous definition is warranted: leadership is the process of influencing the behavior and attitudes of others above and beyond the influence achieved with rewards, punishments, and authority associated with the position. Former presidents Dwight Eisenhower and John Quincy Adams and organizational theorist and CEO Chester Barnard similarly stressed influence that surpassed the influence achieved in the situation and position.

*"Leadership: The art of getting someone else to do something you want done because he wants to do it" (U. S. President Dwight D. Eisenhower).*

*"If your actions inspire others to dream more, learn more, do more and become more, you are a leader" (U. S. President John Quincy Adams)*

*"The responsibility of the executive is (1) to create and maintain a sense of purpose and moral code for the organization; (2) to establish systems of formal and informal communication; and (3) to ensure the willingness of people to cooperate" (Organizational theorist and corporate executive Chester Barnard).*

## Alternative approaches to understanding leadership

In attempting to understand the origins of effective leadership, researchers have chosen to emphasize different aspects of the leadership process. Although often presented as if they were conflicting approaches, they are actually compatible. The situational approach stresses the organization, task, role, and other factors outside the leader as the crucial determinants. The trait approach emphasizes the personality, abilities, and other personal dispositions of the leader as primary determinants of effectiveness. This approach tends to assume that the disposition to become an effective leadership is something that one inherits and is relatively fixed. The behavioral approach hypothesizes that effective leaders differ as a function of what the leader does in performing his or her role and assumes that leaders can change their leadership styles. Cognitive approaches emphasize the beliefs and perceptions of the leader and follower.

The model presented in figure 10.1 conceptualizes the leadership process and the part that traits, situations, behaviors, and cognitions play in this process. Toward the end of this chapter several contingency theories are discussed that fit the various components of the process into one framework.

Before beginning, the reader should keep in mind two ways that the terms used in this chapter differ from the ways that some theorists and researchers use these terms. First, the term situational approach is used to apply to theory that emphasizes the situation over the leader. Some textbooks and authors use situational to describe what this chapter calls the contingency approaches. Second, reference is made to the radical approaches that focus on situational, trait, and behavioral factors and neglect the other factors. There are some scholars and practitioners who take a radical approach, but as the reader will see, leadership is more complex than the radical approaches suggest. This complexity is expressed in the contingency approaches, which are supported to a greater extent than the more radical approaches. The contingency theories state that no one approach has all the answers to the question of how leaders emerge and why they are effective.

Points to ponder:

1. Why is leadership such an important topic in the United States and other western cultures? Why is less central of a topic in other cultures?
2. Provide some examples of the romance of leadership at work by exploring news items related to corporate and other leaders who have achieved great successes or suffered great failures.
3. Why is it important to define leadership, as we have in this chapter, as influence that is incremental, i.e., goes beyond what is the result of forces already at work in the situation such as the task or motivations of the followers?
4. Leaders are often distinguished from supervisors or managers. What is the difference and do you believe this is an important distinction? Can a manager or supervisor achieve success without being a leader? Why or why not?

5. A distinction is made between those who occupy a leadership role and those who actually lead. Why do we need to distinguish between the two?

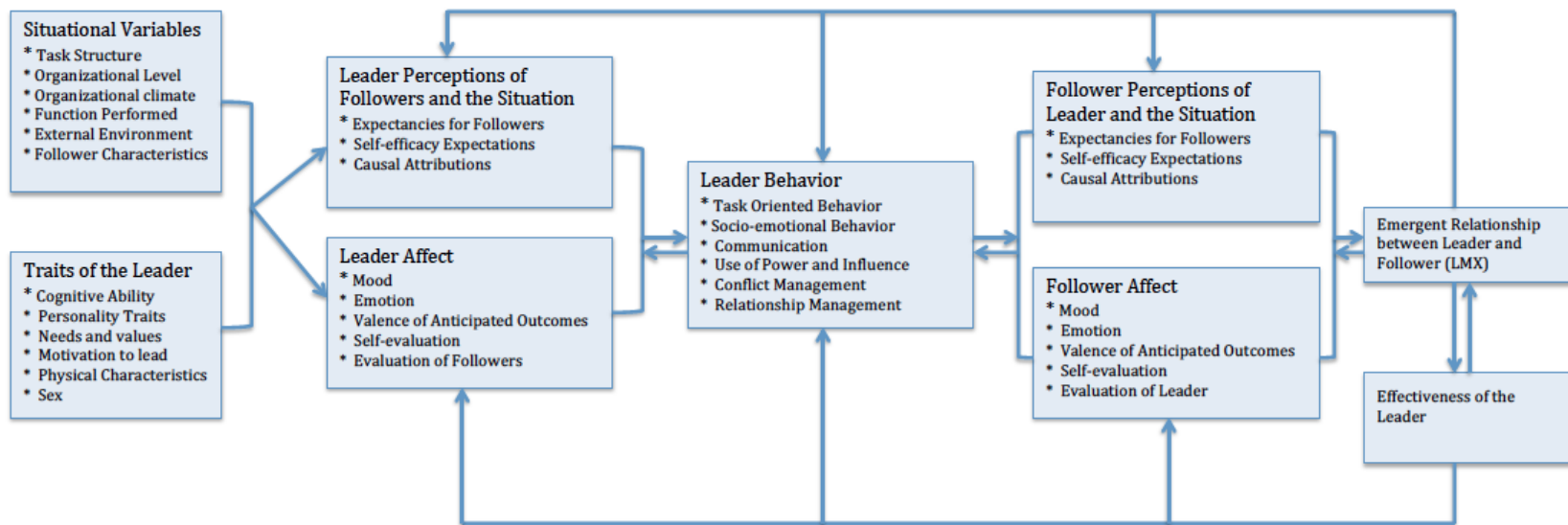


Figure 10.1: A Working Model of the Leadership Process

6. Describe the pieces of the leadership puzzle as depicted in the model and in this section of the chapter.

7. In this chapter and in much of the research literature on leadership, the success or effectiveness of the leader is used interchangeably with leadership emergence. What is the difference between the two and which deserves the greatest attention?

### Effective Leaders Make the Most of the Situation: Situational Approaches

The radical situational approach to leadership suggests that whether a person is a leader or not is mainly a matter of external events. While the behavior approach emphasizes what a leader does and the trait approach emphasizes who a leader is, the situational approach stresses external factors over which the leader may have no control. These situational factors could include followers (e.g., ability, motivation, cohesiveness of group), the task (i.e., the extent of variety, structure, autonomy), the position in the organizational hierarchy (lower, middle, higher level management), pressures to perform (e.g., severe deadlines), the organizational structure (e.g., degree of centralization of authority), and the environment of the organization (e.g., extent of competition with other organizations, how good the economy is performing). These situational factors can determine how the leader behaves as well as the leader's effectiveness in performing the leadership role.

### Situational forces shape leader behavior

The hypothesis that leaders are influenced by the situation is well documented. Yukl (1981, pp. 180-186) reaches the following conclusions based on the research that examines the effects of situational variables on leader behavior.

- The lower managers are in the hierarchy, the less they use participative leadership and the more they focus on technical matters and to monitor subordinate performance.
- Managers of production functions are more autocratic and less participative than sales or staff managers. The most participation is found among managers of staff specialists such as lawyers, human resource management personnel, and industrial engineers.
- Leaders become more authoritarian and less participative as the task becomes more structured. According to Yukl, this occurs because directive and autocratic behavior is easier to exercise on tasks for which one knows the answers.
- Leaders are less participative and more autocratic as the number of followers they supervise increases. With increased size of the group, leaders show less consideration and support of followers.
- As the stress of the situation increases (severe time constraints, hostile environment) the leader becomes more directive and task oriented and less considerate.
- As subordinate performance and competence decline, leaders react with increasingly close, directive, punishing, and structuring behavior and less consideration and participation.

Questions remain about the above effects. One cannot determine from field research whether the situation shapes the behavior of the person in the leadership role or whether particular types of leaders are attracted to the situations (e.g., a more directive leader might prefer a situation involving structured tasks). A second complication is that one cannot in many cases separate the

effects of the various situational factors. Type of task, for example, is often confounded with the type of worker performing the task. Laboratory research on many of the above variables has been able to control for confounds and estimate the relative influence of various situational factors. The findings generally support the view that leader behavior can change markedly in response to changes in the situation (Zaccaro, Foti, & Kenny, 1991). This is also an important assumption of the behavioral approach and some contingency approaches. However, a radical situational approach tends to see the situation as dictating leader behavior and the leader as exercising little control. A less radical approach is that leaders inherit situations which push them in one or another direction, but leaders who exercise influence and are effective control and shape situational forces to their advantage.

### Situational forces shape effectiveness

A second prediction of situational theory is that external forces shape the performance of the group or organization more than the leader. The research supporting this hypothesis come largely from studies on the effects of replacing managers. A common occurrence when things go wrong in the corporate world is for heads to roll in the hierarchy. Replacing managers in response to bad times is a way that top executives and corporate boards attempt to convince employees and shareholders that they are doing something to correct the firm's problems. If leadership is important in determining success, then a correlation should exist between success of the organization and changes in leadership. Contrary to popular conceptions, some of the research on leadership succession shows that changeovers in top-level managers appear less important than external factors as correlates of organizational performance (Allen, Panian, & Lotz, 1979; Lieberman & O'Connor, 1972; Rosen, 1969). For instance, one study looks at the performance of all major league baseball teams over a 53-year period (Allen, Panian, & Lotz, 1979). Contrary to the belief that firing the manager can turn the team around, the results of this study shows little relation between team performance and whether the team replaces the manager. The primary predictor of performance of the team is how well the team performs in the previous season. Although one can point to individual instances where a new baseball manager apparently makes a big difference, change in sports management is not an important correlate of team effectiveness when the relation of changes in manager to effectiveness is considered in the aggregate.

Although findings such as these debunk the overly romanticized view of the leader as the only source of a group or organization's success, this area of research is not without criticism. A major omission in the research on leader succession is an examination of the specific strategies or behaviors of the people in leadership positions. Rather than simply examining whether the leader is replaced or not, research is needed that examines how the leader differs from the previous leader that he or she replaces. Also, a few studies cast doubt on the extreme view that leadership makes no difference. One study finds that the chief executive officer is a major determinant of the profitability of corporations (Weiner & Mahoney, 1981). Another study, conducted with churches, finds that bringing in a new minister who was successful in the past improves the performance of the church (Smith, Carson, & Alexander, 1984). The best conclusion from the research on managerial succession is that both the situation and the leader are potentially important determinants of how well the group or organization performs. Both can affect outcomes, with the circumstances dictating their relative importance.



## Implications of situational theory for leader effectiveness

What are the practical implications of the situational approach to effective leadership? One probably should not even call the radical situational view *a leadership theory*. In placing primary emphasis on the situation, this approach denies that leaders can do much to change the forces acting on them and their followers. The radical situational approach focuses solely on the organizational structure, the task, the competence of employees, and other factors external to the leader. This approach would imply that the selection and training of leaders are unlikely to do much to improve performance.

In the opinion of the author, this radical view is not warranted, but it does provide an interesting contrast for other views that see leadership as an important process. In contrast to such a radical version of the situational perspective, the substitutes for leadership model is a more moderate situational position (Kerr & Jermier, 1978; see table 10.1). According to this approach, leaders must carefully assess the situation and determine what they can contribute, if anything, to external forces already at work. The theory distinguishes between two types of situational factors. Leadership neutralizers are factors that prevent a leader from having either a positive or negative effect on followers. For example, if subordinates are indifferent to the rewards offered by the organization or if the leader lacks control over organizational rewards, then attempts to exert leadership via a person-oriented or task-oriented behavior have no effect.

The other situational factor is the substitute for leadership. Here the situation does not prevent the leader from exercising influence, but is redundant with some attempts at leadership. For example, a leader's attempt to motivate employees through showing concern is potentially redundant with the situation when employees are highly professional, intrinsically motivated, and belongs to a highly cohesive work group. These situational factors take the place of a person-oriented leader. Unlike neutralizers, situational substitutes that are redundant with leadership can do harm. For example, in attempting to structure and clarify a highly routine task, the leader who adds structure to an already structured situation makes a boring situation even more boring. To avoid this the leader should not impose structure and instead consider allowing the situation to substitute for his structuring leadership.

Research testing Kerr and Jermier's substitutes model has yielded mixed results (Howell & Dorfman, 1981; Sheridan, Vredenburg, & Abelson, 1984; Podsakoff, Todor, Grover, & Huber, 1984), but findings are positive enough to suggest that this is a promising approach that deserves more attention. One essential message is that effective leadership requires knowing when leadership is not needed. This is quite difficult given the common belief that a leader should take charge and do something. Another essential message is that part of leadership is dealing with the situation. Effective leaders can transform the situation, making lemons into lemonade and are able to turn threats into opportunities. Another message is that part of being an emergent and effective leader is being able to seek out situations that are favorable while avoiding unfavorable unmanageable situations.

	Effect on Leadership Behavior	Leadership Behavior
<b>Subordinate Characteristics</b>		
...Highly experienced, high ability, well-trained	Substitutes for..	Task oriented, instrumental, directive leadership
...Professional in orientation to job duties	Substitutes for ..	Task oriented, instrumental, directive leadership
...Indifference to rewards provided by organization	Neutralizes	Task oriented, instrumental, directive leadership
<b>Task Structure</b>		
...Structured, routine task	Substitutes for..	Task oriented, instrumental, directive leadership
...Feedback provided by task	Substitutes for..	Task oriented, instrumental, directive leadership
...Intrinsically satisfying tasks	Neutralizes	Task oriented, instrumental, directive leadership, and Supportive leadership
<b>Organizational Characteristics</b>		
....Cohesive work groups	Substitutes for..	Task oriented, instrumental, directive leadership, and Supportive leadership
...Low leader position power	Neutralizes	Task oriented, instrumental, directive leadership and Supportive leadership
...Formalization , rules, procedures	Substitutes for..	Task oriented, instrumental, directive leadership
...Rigidity of organizational structure	Neutralizes	Task oriented, instrumental, directive leadership
...Physical separation of leaders and followers	Neutralizes	Task oriented, instrumental, directive leadership

Table 10.1: Kerr and Jermier's Substitutes and Neutralizers of Leader Behavior

## Summary

A variety of situational forces influence how people attempt to lead and whether they succeed or fail in these attempts. People acquire power and influence as the result of fortuitous events, but it seems overly simplistic to conclude that leadership is only situational. In the opinion of the author, the research supports the radical view that leadership is a myth and the situation is the only factor to consider. The implications of situational influences for effective leadership are most clearly stated in the recommendation of the substitutes [or leadership model that leaders should avoid actions that are redundant with the situation. People who step into a leadership role may fail because they think that effective leaders must act in a certain way regardless of the situation with which they are faced. Instead of assuming that everything must change, the effective leader takes a careful look at the characteristics of the organization, the tasks, and the

subordinates and then attempts to change those characteristics that need changing or provide leadership that complement what is missing (e.g., providing supportive leadership when the task is stressful). At the same time the leader realizes that some things work well as they currently exist and do not need changing. Effective leadership means leaving well enough alone and letting the situation take the lead where the characteristics of the organization, tasks, and subordinates are producing good results. This is a hard lesson to learn when people have been taught that leadership always means acting to change the status quo.

Points to ponder:

1. What are some examples that you can provide of people in leadership roles who succeeded or failed because of the situation in which they found themselves?
2. Provide other examples of leadership substitutes and neutralizers in addition to those provided in this section.
3. One lesson of the situational approach to leadership is that people in leadership roles need to know when they should not even attempt to lead but should instead rely on the situational forces already at work. Some would argue that this constitutes negligence on the part of the person in the leadership role and that leaders should always take hold of the situation and do something. Do you agree or disagree? Why?

### Effective Leaders Possess the Personal Characteristics of Leaders: The Trait Approach

At some time, the reader has probably wondered whether he or she has "the right stuff" to become an effective leader. Part of the "romance of leadership" is the belief that effective leaders possess special attributes that set them apart from most others and enable them to overcome seemingly impossible obstacles. The trait approach to leadership proposes that innate characteristics allow a person in a leadership role to successfully wield influence over others. According to this approach, efforts to turn people into leaders who lack these basic traits are likely to fail. The primary implication of the trait approach is to identify and select for leadership roles the people who already possess these traits. Do research findings support the trait approach?

Several traits have been examined in the meta-analytic research including personality, intelligence, needs, sex, and physical characteristics.

#### Personality and intelligence

Much of the trait research focuses on emergent leadership or whether people who are perceived as leaders in a situation differ from those who are not. In a typical study, members of a work group identify those coworkers they believe are the leaders of the group. Perceived leaders are then compared to nonleaders on their personality traits, abilities, and other attributes. Although the early reviews of this research conclude that traits are unimportant as correlates of perceived leadership (Mann, 1959; Stogdill, 1948), more recent reviews suggest that the correlations between personality traits and leadership are small but are more important than previously believed (House, 1988; Judge, Bono, Ilies, & Gerhardt, 2002; Judge, Colbert & Ilies, 2004; Lord, DeVader, & Alliger, 1986).

A summary presented in table 10.2 shows the relations of the Big Five personality traits to leader emergence and effectiveness.

Personality trait	Leader Emergence		Leader Effectiveness	
	k	$r_c$	k	$r_c$
Neuroticism	30	-.24	18	-.22
Extraversion	37	.33	23	.24
Openness	20	.24	17	.24
Agreeableness	23	.05	19	.21
Conscientiousness	17	.33	18	.16

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = the confidence interval for the correlation excluded zero; a = emergence and effectiveness combined.

Note: The uncorrected correlations were all statistically significant (i.e., the 95% confidence interval excludes zero), with the exception of the correlation between agreeableness and leader emergence.

Table 10.2: Correlations between Big Five Personality Traits and Leader Emergence, Effectiveness, and Combined Effectiveness and Emergence

Four of the five Big Five personality traits are related to leader emergence (the perception the person is a leader), and all of Big Five personality traits are related to leader effectiveness (Judge et al, 2002). The number of studies included in the review is denoted by k. The correlation between the personality trait dimension and the leadership criterion is denoted by  $r_c$  and is basically the correlation between the two after corrections for artifacts such as unreliability of measures. As shown here, persons with higher neuroticism scores are not as likely to be seen as leaders or to succeed in leadership roles. On the other hand, persons with higher extraversion, openness, and conscientiousness scores are more likely to be seen as leaders and to succeed in leadership roles. Interestingly, the higher the scores on agreeableness the more effective the leader, but perceptions of a person as a leader are unrelated to agreeableness. Based on all the analyses in this study, the authors conclude that extraversion is the most consistent predictor of the emergence of leadership and leader effectiveness

In another meta-analysis positive correlations are found between leader intelligence and both emergence of leadership and leadership effectiveness (Judge, Colbert & Ilies, 2004). The more intelligent leaders are more likely to emerge as leaders and succeed in leadership roles. Scores from paper-and-pencil tests of intelligence are positively related to objective measures of effectiveness (corrected  $r = .25$ ), perceived emergence (corrected  $r = .19$ ), and perceived effectiveness (corrected  $r = .15$ ).

David McClelland and his colleagues at Harvard (McClelland & Boyatzis, 1982) have conducted extensive research on three additional traits: need for achievement (nAch), need for power

(nPow), and need for affiliation (nAff). As mentioned in the module on motivation, there is evidence that effective managers in smaller organizations tend to have high to moderate needs for achievement, a high need for power, and a low need for affiliation compared to ineffective managers (McClelland & Boyatzis, 1982; Stahl, 1986). McClelland (1985) speculated that the successful manager is high on need for power and power inhibition. Power inhibition refers to psychological constraints against exercising power in a coercive or bullying manner. Those who are high on both variables exercise power in a socialized manner, whereas those who are high on need for power but low on power inhibition tend to fail because of their personalized use of power. According to McClelland, need for achievement is also related to managerial success in small organizations where the manager has control over the task. In a large organization in which bureaucratic procedures and politics set severe limits on the manager, achievement motivation is not as likely to lead to managerial effectiveness (McClelland & Boyatzis, 1982).

The results of House, Spangler, and Woycke (1991) suggest that the findings with managers also extend to U.S. presidents. They rated the nAch, nPow, nAff, and power inhibition of all U.S. presidents through Ronald Reagan on the basis of historical records such as letters, speeches, and biographies. Presidential performance in international relations and in domestic affairs are positively related to nPow and power inhibition but negatively related to nAch and nAff. The negative relationship with nAch seems surprising but not if one considers the lack of control that Presidents have over many of the external factors that determine their success. A high need for achievement President eventually feels a high level of frustration over the lack of control (good examples come from recent Presidents Bush and Obama). This is all consistent with the theorizing of McClelland and his associates who assume that nAch becomes a more important predictor of the performance a person in a leadership role if that person has some control over his or her outcomes.

Other studies provide similar conclusions regarding power/dominance and the achievement striving of the manager. Over 50 years ago Standard Oil of New Jersey (now Exxon Corporation) tested the personality of 443 managers and find a relation to dominance. According to Campbell, Dunnette, Lawler, and Weick's (1970) description of the results of this study:

"Successful executives in the SONJ organization have shown a total life pattern of successful endeavors. They were good in college, are active in taking advantage of leadership opportunities, and see themselves as forceful, dominant, assertive, and confident" (p 169).

### The motivation to lead

The motivation to lead is a potentially important trait that is closer to the actual performance of a leadership role than the personality traits such as the big five and the needs for power, affiliation, and achievement. Research shows that there are three components of the motivation to lead (Chan & Drasgow, 2001)). Where there is an affective/identity motivation to lead, the person wants to take a leadership role and identifies with the leadership role. The person high on the social/normative motivation to lead believes that he or she has a duty and an obligation to take leadership roles and tends to reject the idea of social equality (e.g., "I feel that I have a duty to lead others if I am asked"). A person high on the noncalculative motivation to lead desires to lead even if there are no apparent benefits to the person. A low score on this dimension reflects a

motivation to lead that is mostly oriented to the rewards of the leadership role (e.g., “I am only interested in a leadership role if there are clear advantages to me”). Theoretically a person could show different patterns of responses, but scores on the three dimensions are positively interrelated. In other words, scores that are high on one dimension are associated with higher scores on the other two.

As indicated in figure 10.2, there are alternative paths to the motivation to lead (Chan & Drasgow, 2001). One path is reflected in a direct effect of personality and culture on the motivation to lead. General cognitive ability seems unrelated to the motivation to lead and leadership self-efficacy. However, personality, past leadership experience, and the cultural values held by the person are associated with the motivation to lead. Rather than repeating all the details of their findings, a few highlights will perhaps suffice. First, there are some direct effects of personality and cultural values on the motivation to lead. Extraversion is positively related to affective/identity motivation to lead as one might expect. Also, collective values in which the person believes and values being part of a group are positively related to the social/normative and noncalculative motivation to lead. Finally, those who have been in leadership roles or have leadership experiences tend to have higher motivation to lead. The most impressive path, however, is expressed in the mediating role of leadership self-efficacy. It appears personality, cultural values, and past leadership experiences affect leader self-efficacy. The self-efficacy to lead is higher among those high on extraversion, agreeableness, and openness to experience and those who have had past leadership experiences. In turn, the self-efficacy to lead is strongly related to the affective/identity motivation to lead. The message of this research is that an organization attempting to develop leadership in employees should provide them with opportunities that instill self-confidence in the ability to lead. These opportunities need to take into account the personality of the individuals. Those who are extraverted, agreeable, and open to experience are more likely to take advantage of these opportunities and benefit from them.

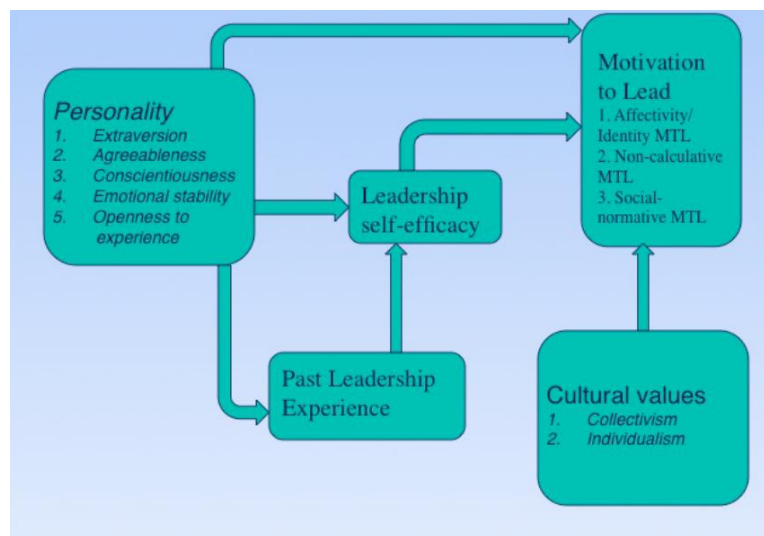


Figure 10.2: Drasgow and Chan General Model of Motivation to Lead

Somewhat related to the motivation to lead is a measure developed by John Miner (1978). His Sentence Completion Test is a projective test consisting of incomplete sentences that the

respondent must complete. A high level of motivation to manage is reflected in responses indicating a favorable attitude toward authority and desires to compete against others, use power, stand out from the group, and attract the attention of others. Moreover, motivation to manage is characterized by a positive view of routine administrative chores. For instance, in response to a sentence stem such as “A powerful leader will ....” the person with a high level of motivation to manage might state that the person needs to take charge and inspire his or her followers. Several studies with the Sentence Completion Test show that managerial success in large bureaucratic organizations is related to higher levels of the motivation to manage. He also finds substantial declines in scores on the motivation to manage among younger people. He concludes that young people today are less motivated to manage than older people.

### Physical traits

The physical characteristics of a person such as height, weight, color of hair, and body type constitute another category of traits. Of these, the characteristic that has received the most attention is height, and the results of the research show fairly clearly that height is positively related to leader emergence and leader effectiveness (see table 10.3).

Leader emergence and effectiveness	k	N	$r_{uc}$	$r_c$
Across all criteria	45	7,691	.22*	.26
Leader sex				
Male	29	4,795	.24*	.29
Female	14	2,262	.18*	.21
Mixed	5	644	.25*	.30
Type of criterion				
Social esteem	12	1,770	.36*	.41
Leader emergence	16	2,352	.17*	.24
Performance	14	2,907	.16*	.18
Measure of criterion				
Subjective	29	4,087	.25*	.31
Objective	16	3,604	.18*	.21

K = number of correlations; N = number of participants;

$r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts;

\* = confidence interval for correlations excluded zero

Table 10.3: Correlation of Height and Success

As seen in the meta-analysis results in table 10.3, this is true for men and women, and is found for leader emergence and leader effectiveness as measured with both objective and subjective measures of performance (Judge & Cable, 2004). These findings do not show that taller persons have inborn leadership ability. More likely taller persons are simply perceived as more influential, and they succeed because followers see them as effective leaders. In other words, height and other aspects of physical appearance are self-fulfilling in the sense that if others expect a person to succeed as a leader, that person may well succeed because of these expectations.

### Sex differences

One meta-analysis concludes that perceived leaders have "masculine" personalities (Lord et al., 1986). These findings, as well as evidence that there is a much smaller proportion of women in management than men (Morrison & Von Glinow, 1990), bring attention to a controversial question: Do women lack the basic traits required of leaders? Some research shows a tendency to perceive even successful women managers as possessing communal (stereotypic female traits) but lacking in the agentic (stereotypic masculine) traits associated with leadership (Heilman, Block, Martell, & Simon, 1989). Koenig, Eagly, Mitchell, and Ristakari (2011, p. 637) conclude on the basis of their meta-analysis that "the masculinity of the cultural stereotype of leadership is a large effect that is robust across variation in many aspects of leaders' social contexts".

According to the role congruity theory of leadership (Eagly & Karau, 2002), this representation of leadership poses a problem for women because female stereotypes do not match expectations for leaders. Even women who possess outstanding qualifications for leadership may have the burden of overcoming preconceptions that they are not well equipped to lead. Stereotyping makes it difficult for women to gain access to leader roles and create conflicting expectations for how female leaders should behave. According to the stereotype, successful female leaders are agentic in that they act as leaders and fulfill the leadership role but communal in that they are caring and warm and thereby fulfill the female gender role. Sadly, a woman who is highly competent but disregards the communal gender role is at greater risk of being rejected by followers than a man who is agentic and also lacks the communal behaviors.

Are these stereotypes warranted? Researchers who compare "women in general" with "men in general" have found that women do differ from men in their personality traits. In a recent review of sex differences, Eagly and Johnson (1990, p. 235) conclude that "Women as a group, when compared with men as a group, can be described as friendly, pleasant, interested in other people, expressive, and socially sensitive." Other researchers claim that women may tend to have lower self-confidence (White, et al, 1981) and are less aggressive (Jacklin & Maccoby, 1975). Women do not appear to show any less need for power (Stewart & Winter, 1976), but there is some indication that they are more likely to show socialized power than personalized power (Chusmir & Parker, 1984).

Despite these differences between men in general and women in general, comparisons between the subsets of men and women who aspire to or occupy management roles reveal much smaller differences (Dipboye, 1987). More importantly, there is no consistent support for the position



that women are deficient in the traits needed to succeed in management positions. In a comprehensive meta-analysis of leadership traits and the relation to outcomes, sex of the leader was the least important of all traits (DeRue, Nahrgang, Wellman & Humphrey, 2011). The correlations for sex were essentially zero for leader effectiveness ( $r = -.03$ ), follower job satisfaction ( $r = -.04$ ), and satisfaction with leader ( $r = .00$ ). The most reasonable conclusion from research is that women have as much potential to perform effectively in management as men. Although anecdotes do not provide proof, there are plenty of specific examples of the successful performance of women leaders. The author agrees with researchers who conclude that the relative lack of women in management is best explained in terms of situational barriers and cultural biases.

An interesting possibility is that as the nature of leadership roles changes, the traits required for becoming an effective leader in organizations will also change. The evidence that masculinity was related to being perceived as a leader (Lord et al., 1986) could reflect the stereotypes of leadership as a male activity that were dominant at the time the research was conducted. One could hypothesize that people will place less importance on so-called "masculine" traits in evaluating managerial effectiveness as women managers become a more familiar sight in organizations. The increasing use of teams and the emphasis on participatory management suggest that the ideal of a leader who can balance task and people concerns will replace the stereotype of the hard fisted leader. Only time will tell, however, and more research is needed to test our conjecture about the relation of personality traits and management effectiveness.

### And what about women as leaders?

There is little evidence that women are less successful than men as leaders.

However, women face unique barriers when they are in managerial roles.

### Is leadership inherited?

Arvey, Rotundo, Johnson, and McGue (2006) identified 119 sibling pairs who were identical twins and 94 that were fraternal twins. Each member of a sibling pair was surveyed as to the leadership roles they had occupied. The questionnaire asked how many professional organizations in which they had played a leadership role and whether they had held a position as a leader of a work group leader, team leader, shift supervisor, manager, director, vice-president, president, or other leadership role. A composite was formed from the responses to measure the amount of past leadership experience. In addition to this measure, there was also a personality questionnaire measuring two personality dimensions that previous research found were related to leadership: social potency (i.e., dominance) and achievement orientation.

About 30% of the variance in the leadership role measure was attributable to genetics after controlling for the personality variables. Although a considerable amount of variance was unexplained and was not attributable to genetics, 30% is substantial and shows that there is a trait aspect to leadership that one cannot ignore. Other studies have shown that heredity plays a role in who becomes a leader although somewhat less variance is attributed to genetics (De Neve, Mikhaylov, Dawes, Chgristakis & Fowler, 2013). It seems unlikely that leadership per se is inherited. Rather, the personality traits associated with leadership such as extraversion are inherited, and then a complex interaction among personality traits, cognitive abilities, and situational opportunities lead to leadership emergence. There is a trait aspect to leadership but leadership is far from being only a matter of genes.

#### Moderating effects of situation on relation of traits to leadership

Traits alone are not enough to explain leadership emergence and success and the situation is likely to serve as a moderator of the relations between traits and leader emergence and effectiveness. The cognitive resource theory of leadership proposes some possible moderators of the relationship between intelligence and leader effectiveness (Fiedler & Garcia, 1987). Specifically, this theory predicts that leader intelligence is more likely to predict success of the group when the leader is directive in his or her approach to leading the group, the group is supportive of the leader, and the group's task is intellectually demanding. Intelligence can also predict success of the group when the leader is nondirective, but only if the group supports the leader. The leader's intelligence is predicted to become less important, and experience more important, as situational stress increases. A meta-analysis of the studies that have tested cognitive resource theory provides some support for these predictions (Judge, Colbert & Ilies, 2004). Consistent with cognitive resource theory, intelligence is positively related to the performance of the leader when the group led is under low stress but the relationship is close to zero when there is high stress. Also supportive of cognitive resource theory, intelligent leaders are more effective than less intelligent leaders when the leader is high on directiveness. Intelligence is unrelated to effectiveness when the leader is low on directiveness.

Another example of how the situation moderates the influence of a trait is found for extraversion. This is a trait that is positively related to both emergence and effectiveness of leadership. The correlation is small, however, and one can easily think of many examples of leaders who are introverted as well as leaders who are extraverted. Examples of introverts are Microsoft's Bill Gates and Google's Larry Page. Contrast these shy-guys with Microsoft CEO Steve Balmer who popped out of a cake at a corporate gathering.

An interesting set of studies demonstrates how the personalities of followers serves as a situational factor moderating the influence of leader personality (Grant, Gio & Hoffman, 2011). Researchers conducted a field study in which they looked at extraversion of the managers of pizza stores along with the proactivity (i.e., how motivated) of the store employees. They find that an extraverted leader has higher store profits when the employees in the store are relatively low on proactivity. This suggests that the leader's extraversion complements and helps to compensate for the lack of motivation of the employees. However, when employees are proactive and motivated, the introverted managers tend to show higher store profits.

These findings were replicated in a well-controlled laboratory experiment in which groups were given the task of folding t-shirts (see figure 10.3). The groups were formed to consist of introverted or extraverted group members and were assigned either an extraverted or introverted leader. Both sets of results are shown below. These findings appear supportive of a “substitutes for leadership” approach in which a proactive group of employees can substitute for the lack of an outgoing leader personality. The findings also support the idea that a proactive group is potentially redundant with and clashes with the personality of an outgoing leader. Such moderating effects of the situation probably account for the somewhat small correlations found between extraversion and leader effectiveness.



*Founder of Microsoft Bill Gates (on the left) and Co-founder of Google Larry Page (on the right) are prime examples of introverts who are successful leaders.*



**Steve Ballmer, CEO of Microsoft, is an extraverted leader. For example, to celebrate Microsoft's 25th anniversary, Ballmer enthusiastically popped out of the anniversary cake to surprise the audience.**

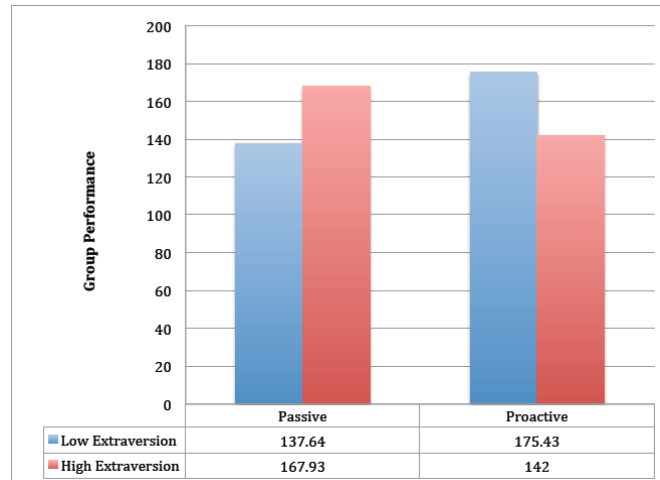


Figure 10.3: Group Productivity as a Function of Leader Extraversion/Introversion and Follower Passivity/Proactivity

## Summary

The most extreme trait approach would state that leaders are born, not made. In other words, leaders are people whose success is the consequence of their innate personalities, cognitive abilities, and physical traits. Research has found that some traits are indeed related to perceived leadership and success in leadership roles. However, such traits explain only a small part of the variance. Part of the reason that they explain only a small amount of the variance in leader emergence and effectiveness is that situational factors moderate the correlations found between traits and leadership.

What is the lesson of the trait approach? Three conclusions appear warranted:

1. Traits account for a small amount of variance in leader emergence and success. Although they are only a small piece of the puzzle, they should not be ignored.
2. If low on one of the “leadership” traits, the individual should consider these weak points that need improvement, not as factors that prevent leadership.
3. It does appear that people develop stable styles of leadership that are “trait-like”.

### Some conclusions from trait research

- Traits account for a small amount of variance in leadership emergence and success but are only a small piece of puzzle.
- If you are low on one of the “leadership” traits it points to likely weak points that need work.
- It does appear that people develop stable styles of leadership that are trait-like.

From the viewpoint of the organization, management should select among applicants for leadership roles based to some extent on whether the applicants possess the personality and other traits that past research shows are related to leadership effectiveness. The author would not recommend screening applicants on the basis of height, but certainly those charged with selecting leaders should give attention to intelligence and personality. In selecting leaders, it should be recognized that the possession of these characteristics only provides a small edge to the person chosen for the leadership role. The organization also should give attention to where persons in leader roles are somewhat deficient on the traits related to leadership. Assessment centers and 360-degree performance appraisal (i.e., appraisals based on supervisor, self, peer, and subordinate evaluations) and feedback are used in organizations to develop leaders and these approaches often focus on traits. There is also a lesson for the person in the leadership role. Possessing personality traits that are inconsistent with the profile of traits defining effective leaders and those who are perceived as leaders does not mean that one cannot become a leader or succeed in a leadership role. However, if one's traits are inconsistent with the leadership role (e.g., if one is uncomfortable with the exercise of power, very high on need for approval and affiliation, or low on extraversion and the need for achievement), it does indicate potential weak spots that need attention.

Points to ponder:

1. Do you believe some people are simply born to lead whereas others are born to not lead? Why or why not?
2. Summarize the personal traits that are related to leadership emergence and leadership effectiveness? For each one, why is the trait positively related to emergence and/or effectiveness?
3. Individuals are more likely to perceive taller persons as leaders than shorter persons. Moreover, taller persons are likely to succeed as leaders than shorter persons. Based on these results, do you believe that height is a legitimate basis for selecting people for leadership roles? Why or why not?
4. Intelligence is consistently related to the success and leadership emergence of people in leadership roles? How does the cognitive resource theory of leadership set some boundaries to this relation? Can you think of situations in which the intelligence of the leader was instrumental to the success and emergence of the leader? Can you think of situations in which intelligence of the leader hindered the success and emergence of the leader?
5. Do you believe that younger people are less motivated to lead and to manage than previous generations, and if so, why? If not, why not?

### Leaders Do the Right Things: The Behavioral Approach

If you want to be a leader but do not believe you possess a high degree of the traits that are related to leadership, the behavioral approach offers hope. According to this conception of leadership, success as a leader depends mainly on adopting the right behaviors, and one can learn these behaviors. One of the most comprehensive meta-analyses of the research on leader traits and behaviors reveals that both leader traits and leader behavior predict leader effectiveness, but behaviors are more important than traits and mediate the effects of behaviors (DeRue et al,

2011). A close look at how leaders behave reveals a remarkable diversity in the actions taken by people in leadership roles. Consider the following two examples.

The first is Ricardo Semler, who has served for over 25 years as CEO of Semco, the Brazilian manufacturer of industrial machinery. Semler allows employees an amazing amount of freedom and requires them to participate in the running of the organization. Not only do they set their own work hours and pay levels, but they also hire and evaluate their supervisors, decide the color of the paint on the factory walls, take breaks when they wish, and choose the tasks they perform. There are no organizational charts, written rules, policies, dress code, strategic plans, or corporate values statements. Basically, employees are given the organizational objectives and then decide themselves how to achieve these objectives. Semler has set forth his philosophy of management in several books, including *The Seven-Day Weekend* and *Maverick: The Success Story Behind the World's Most Unusual Workplace*. Apparently, his philosophy is working. "In the worst 10-year recession in Brazil's history, revenues grew 600%, profits were up 500%, and productivity rose 700%. Innovative Stakeholders have taken them into profitable industries they could have never dreamed of entering, and they continue to grow exponentially" (Blakeman, 2014).

Compare Semler's style to that of Jeff Bezos, the founder and CEO of Amazon.com. In his biography of Bezos (*The Everything Store: Jeff Bezos and The Age of Amazon*), Brad Stone describes the CEO of Amazon as ruling with an iron-fist. It apparently is not uncommon to hear him tell people in meetings "I'm sorry, did I take my stupid pills today?" or "Do I need to go down and get the certificate that says I'm CEO of the company to get you to stop challenging me on this?" He is strictly results oriented and confrontational in getting employees to produce results. Bezos has created a culture at Amazon in which executives compete with one another and emerging as the winner is the top priority. "Data reigns supreme at Amazon, particularly head-to-head tests of customers' reactions to different features or site designs. Bezos calls it 'a culture of metrics.' With dozens of these gladiator-style showdowns under way each week, there isn't much time for soothing words or elaborate rituals of social cohesion" (<http://www.forbes.com/sites/georgeanders/2012/04/04/bezos-tips/#342c338d7947>). In his biography, Brad Stone observes that "If you're not good, Jeff will chew you up and spit you out. And if you are good, he will jump on your back and ride you into the ground" (<http://www.dailymail.co.uk/news/article-2462412/New-book-reveals-Amazon-CEO-Jeff-Bezos-management-style.html>). Amazon.com is a hugely successful firm with net revenues increasing from \$6.92 billion in 2004 to over \$107 billion in 2015.

Are there general dimensions that provide a basis for comparing the behavior of such different leaders as Ricardo Semler and Jeff Bezos, and do effective leaders differ from ineffective leaders on these dimensions? These two questions are the central concerns of behavioral research on leadership. The behavioral approaches attempt to identify the things that emergent and effective leaders do. The most general distinctions are the extent to which a leader is task and people oriented and the extent to which a leader develops a high quality relationship with followers. More specific behavioral distinctions include how leaders communicate, the extent to which they allow followers to anticipate in decisions, and the extent to which they provide support to employees.

Leader behaviors fulfill both task and socio-emotional demands

People in leadership roles differ on the extent to which they focus on getting the work done and the extent to which they attempt to satisfy the personal needs of their followers. Early work conducted at the University of Michigan led to a one-dimensional model in which individuals are people oriented at one end of the continuum, task oriented at the other end, or some point in between (Katz, Maccoby, & Morse, 1950). According to the Michigan studies, a person in a leadership role who is high on a task orientation is necessarily low on people orientation. A person who is high on a people orientation is necessarily low on a task orientation. The individual is never high or low on both. The Michigan studies depict people in leadership roles as engaged in a struggle between tending to the work of the group or the needs of the people that constitute the workgroup. Subsequent research demonstrated that this one-dimensional view is wrong and that we need to conceive of leadership as multi-dimensional. Research at Ohio State University established a two-dimensional model that has been highly influential and led to even more complex models of leader behavior.

#### The Ohio State leadership studies.

A one-dimensional model of leadership gave way to a more complex two-dimensional model as the result of an important program of research that began at Ohio State University in the late 1940s (Stogdill & Coons, 1957). Unlike the researchers at Michigan, who assumed a one-dimensional model, the Ohio State investigators started by having people in many different types of jobs generate a list of attributes to describe the behaviors of their leaders. These descriptions were then subjected to a statistical procedure called factor analysis (see the chapter on research methods). The results revealed that descriptions of leaders are reducible to two fundamental dimensions: initiating structure and consideration.

Initiation of structure was defined as behavior "in which the supervisor organizes and defines group activities and his relation to the group."

Examples of items that reflect initiating structure are:

- \*\*\*Makes his or her attitudes clear to the group,
- \*\*\*Emphasizes the meeting of deadlines;
- \*\*\*Lets group members know what is expected of them.

Consideration was defined as behavior indicating mutual trust, respect, and a certain warmth, and rapport between a supervisor and his group. Items reflecting this dimension include:

- \*\*\*Is friendly and approachable;
- \*\*\*Puts suggestions made by the group into operation;
- \*\*\*Treats all group members as equals.

These two dimensions are similar to the employee-oriented versus production-oriented distinction in the University of Michigan leadership studies and an earlier distinction between authoritarian and democratic leadership by Kurt Lewin. However, the major discovery of the Ohio State research is that these are *independent dimensions*. In other words, some people are high on both, others low on both, others high on one and low on the other, and still others are at some point in the middle on one or both. The Ohio State Leadership studies led to several measures. The Leader Behavior Description Questionnaire (LBDQ) asks subordinates to describe their leaders on a questionnaire containing items reflect initiation of structure and consideration. The Leader Opinion Questionnaire (LOQ) asks leaders to describe their own behavior. A later modification of the LBDQ that makes it more suitable for industrial settings is called the Supervisor Behavior Description Questionnaire (SBDQ). In all cases, a leader receives a score on *consideration* and a score on initiation of structure.

The accumulated findings of research using the original Ohio State leadership measures suggest that changes are needed in the ways that initial of structure and consideration are conceptualized and measured. For one, subsequent research shows that the two dimensions measured with these scales are less independent than originally believed with positive correlations as large as  $r = .70$  found between initiation of structure and consideration (Weissenberg & Kavanagh, 1972). The extent to which the two dimensions are related depends on the items included in the questionnaires (Schriesheim & Kerr, 1974). Also, subsequent research suggests that some elaboration is needed on the two dimensions (Bass, 1990; Bass & Valenzi, 1974; House & Mitchell, 1975; Stogdill, 1974; Yukl, 1981). For instance, researchers at the University of Michigan propose a more complex four-factor model that included giving support, facilitating interaction among group members, motivating employees to achieve goals, and work facilitation (Bowers & Seashore, 1966). Despite the value of the Ohio State studies, it is apparent that two broad dimensions are not sufficient to capture the complexity of leadership behavior. Several researchers have expanded on the both dimensions in the development of other leadership measures. House and his associates in their work on path-goal theory split each of the two Ohio State dimension into two separate dimensions (House & Mitchell, 2007). Consideration encompasses participativeness and supportiveness, and initiation of structure encompasses directiveness and achievement orientation. Stogdill (1963) goes even further in his LBDQ-12 and includes 10 leadership dimensions in addition to initiation of structure and consideration. However, most of the alternative measures are elaborations on the two-dimensional model. The distinction between people-oriented behavior and task-oriented behavior persists and continues to affect theories of leadership and interventions to improve leadership.

### The Managerial Grid<sup>®</sup>

The evidence for two fundamental dimensions of leadership is impressive and is consistent with the idea, covered in the last module, that all social systems, from small groups to whole societies, must fulfill both task and internal/maintenance functions. Given these findings, it seems logical to some theorists to propose that the most effective leaders are high on both dimensions. Blake and Mouton (1964) did exactly this when they set forth the Managerial Grid<sup>®</sup>. This is a two-dimensional view of leadership similar to that found in the Ohio State research. In their managerial grid<sup>®</sup> theory of leadership, they describe leaders along two nine-point dimensions: employee-oriented and task-oriented (see figure 10.4). Although 81 combinations are possible,



the five most typical styles are the 9,1 (high task, low people: authoritarian); 1,9 (low task, high people: country club); 5,5 (medium task, medium people); 1,1 (low task, low people); and 9,9 (high task, high people). The ideal style, according to Blake and Mouton, is the 9, 9 style. One of the early studies in the Ohio State leadership research (Halpin, 1957) appeared to support the contention that high task orientation (initiation of structure) and high people orientation (consideration) combination is the best combination. Subsequent research with these scales, however, presents a more complex picture (Schriesheim, House, & Kerr, 1976). Contrary to Blake and Mouton's contention that high task orientation/high people orientation leadership is always best, the evidence fails to show that the 9, 9 style is in some situations less effective than the other combinations of leadership styles (Larson, Hunt, & Osburn, 1976; Nystrom, 1978).

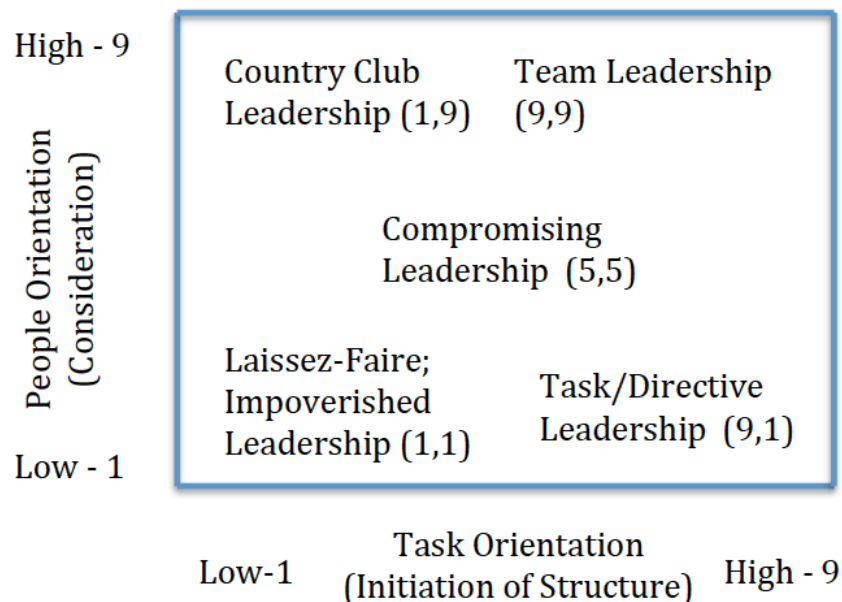


Figure 10.4. The Blake and Mouton Managerial Grid© Model

Research in the United States shows that each of the various combinations of task orientation and people orientation is potentially an effective style depending on the situation (Larson, Hunt & Osburn, 1976). Further evidence of this comes from research in Japan on a two-dimensional model of leadership called the PM theory of leadership (Misumi & Peterson, 1985). These investigators borrow from the Ohio State leadership studies to propose that the leadership of a group serves two functions. The performance function (P) consists of leader behaviors aimed at fulfilling group goals; the maintenance function (M) consists of leader behavior that fosters group survival and wellbeing. Leaders can exhibit a high level of both functions (PM), a high level of one and a low level of the other (Pm, Mp), or a low level of both (pm). Unlike Blake and Mouton's (1964) grid theory, the findings of this research program show that the effectiveness of each style is contingent on the situation. Although a PM-type leadership seems generally preferable to the other styles, situations involving high anxiety may require an M-type leadership, whereas situations involving a short-term task, low-achieving group members, and time pressures may require P-type leadership.

The view that effective leaders always show a high degree of both people and task orientation is not supported. But it is reasonable to recommend that groups and organizations fulfill both their socio-emotional and task functions even if these functions are not fulfilled solely by a leader's behavior. A situation in which only task concerns are met can achieve high levels of productivity in the short term, but at the long-term cost of the social and emotional well-being of the people involved. Likewise, a leader who fulfills social and emotional needs but neglects tasks may engender satisfaction but is unlikely to produce much in the way of results. Other people besides the person in the leadership role can fulfill these maintenance and task functions. For instance, a leader who is low on fulfilling members' social and emotional needs could rely on other group members to fulfill these needs. Whereas the managerial grid<sup>®</sup> proposal that a leader should strive fulfill both socio-emotional and task functions is correct, the leader does not necessarily need to fulfill both simultaneously in his or her leadership style.

#### Correlations with satisfaction and performance.

Although the 9, 9 combination does not lead to the best outcomes in all situations, the research shows that each individual dimension of leadership (initiation of structure and consideration) is positively related to employee satisfaction and performance. Table 10.4 summarizes the correlations of various criteria of leadership effectiveness with initiation of structure and consideration (Judge, Piccolo, & Ilies, 2004). The corrected and uncorrected correlations in the table, suggest that both leadership dimensions are positively related to leader effectiveness, although consideration is more strongly related than initiating structure. Increases in consideration and initiation of structure are associated with increases in satisfaction with the job and the leader, motivation, performance of the leader, performance of the group and the organization, and the general effectiveness of the leader. These results do not substantiate the claim that a combination of high initiation of structure and consideration yields the highest leader effectiveness, but it does seem to substantiate that higher scores on each dimension is related to a variety of positive outcomes.

#### Summary.

The major contribution of the Ohio State leadership studies is the discovery of two basic dimensions of leader behavior: initiation of structure and consideration. Subsequent work shows that leader behavior is complex and cannot be reduced to scores on the LBDQ, SBDQ, or LOQ. Still, the idea of task and maintenance functions underlying variations in leadership behavior is alive and well. The original studies inspired the Managerial Grid<sup>®</sup>, which has taken on a life of its own. The research does not support the universal superiority of a 9, 9 style. Effective leaders can vary across all possible combinations. Still, a primary lesson is that leaders need to fulfill both task and people considerations either through their own leadership styles or through distributed leadership within the group and other substitutes for leadership. Initiation of structure, consideration, and other such general behavioral dimensions provide an insufficient basis for specific recommendations on what managers can do to improve their leadership. What is needed is an examination of the more specific behaviors exhibited by leaders in fulfilling task and maintenance functions including how they communicate, influence others, and manage conflict. Also, needed is an examination of the quality of the relationship between

the leader and followers. The author will now explore the role of each of these other behavioral domains in understanding and improving leader effectiveness.

	Consideration				Initiation of Structure			
Outcome	k	N	$r_{uc}$	$r_c$	k	N	$r_{uc}$	$r_c$
Follower job satisfaction	76	11,374	.40*	.46	72	10,317	.19*	.22
Follower satisfaction with leader	49	7,871	.68*	.78	49	8,070	.27*	.33
Follower motivation	11	1,067	.36*	.50	12	1,041	.26*	.40
Leader job performance	25	2,330	.18*	.25	22	2,085	.19*	.24
Group-organization performance	27	2,008	.23*	.28	27	2,079	.23*	.50
Leader effectiveness	20	1,605	.39*	.52	20	1,960	.28*	.39

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = correlations for these predictors were statistically significant.

Table 10.4: Relation of Consideration and Initiating Structure to Leadership Outcomes

Points to ponder:

1. One implication of a radical behavioral approach is that one can train anyone to adopt the behaviors necessary to emerge and succeed as a leader. Do you believe this is true? Why or why not?
2. How are the two dimensions of leadership identified in the Ohio State studies manifested in the behaviors of people in leadership roles? Provide specific examples of initiation of structure and consideration.
3. The conclusion was reached in the Ohio State leadership research that the two dimensions of leadership were independent and that a person in a leadership role might show high consideration and high initiation of structure as well as a high level of one and a low level of the other. Can you think of situations in which a person in a leadership role would have a difficult time showing high initiation of structure and high consideration? Can you think of situations in which a person would have an easier time demonstrating a high/high combination? Describe each one and explain why?

4. In the last chapter, we discussed how groups need to fulfill both the task roles and the socioemotional roles. How do the findings of research on initiation of structure and consideration relate to what we discussed with regard to group roles?

### Effective leaders communicate effectively

Verbal communication constitutes over half of the typical manager's daily activities (Burns, 1954; Mintzberg, 1973; Stewart, 1976). Indeed, one could reduce all the leader behavioral styles discussed so far to specific communicative acts (Penley & Hawkins, 1985). Take, for instance, influence tactics. The success of attempts to influence others is likely to depend on what the leader says in carrying out the tactics (Drake & Moberg, 1986). A leader can use language to sedate followers into not thinking about the attempts to influence them. Rather than using a direct order such as "take care of that customer complaint, a manager might say "that customer is very unhappy with service he received." In the latter case, the follower is less likely to think that he or she is the target of influence and is more likely to take care of the customer complaint. Compliance with requests is also more likely if the person uses powerful language consisting of a rich vocabulary, expression of certainty, intense language, and verbal immediacy (Drake & Moberg, 1986). High immediacy in language places the communicator closer to the topic whereas low immediacy places distance between the communicator and the topic (*this* is my wife vs. *that* is my wife). According to Drake and Moberg, "This is what we must do now" is more powerful than "That is what we may want to do." In contrast to powerful language, "powerless" language is characterized by negative politeness strategies in which the speaker tries to avoid making the recipient feel controlled and includes stating one's debt to the target, apologizing for imposing, and indirect questions. Compare "do this project for me, please" with "I am sorry to bother you but would you mind doing this project for me?" Powerless language is also expressed in hedges (you know, kinda, I guess), question intonation in declarative contexts (the report will be ready at six?) and hypercorrect grammar (whom do you mean?).

The effectiveness of managerial communications depends on the communication styles they use (Klauss & Bass, 1982). Effective communicators are: (1) "Careful transmitters" in their choice of words; (2) "open and two-way" with regard to other points of view; (3) "frank" in saying what they think; (4) "careful listeners" in the attention given to the recipient of the message; and (5) "informal" in that they were natural and relaxed when communicating (Klauss & Bass, 1982). According to the model presented in figure 10.5, communication style influences the extent to which the manager is perceived as trustworthy, informed, and dynamic. The perceived credibility of the communicator, in turn, influences the role clarity, satisfaction, and effectiveness of the recipients.

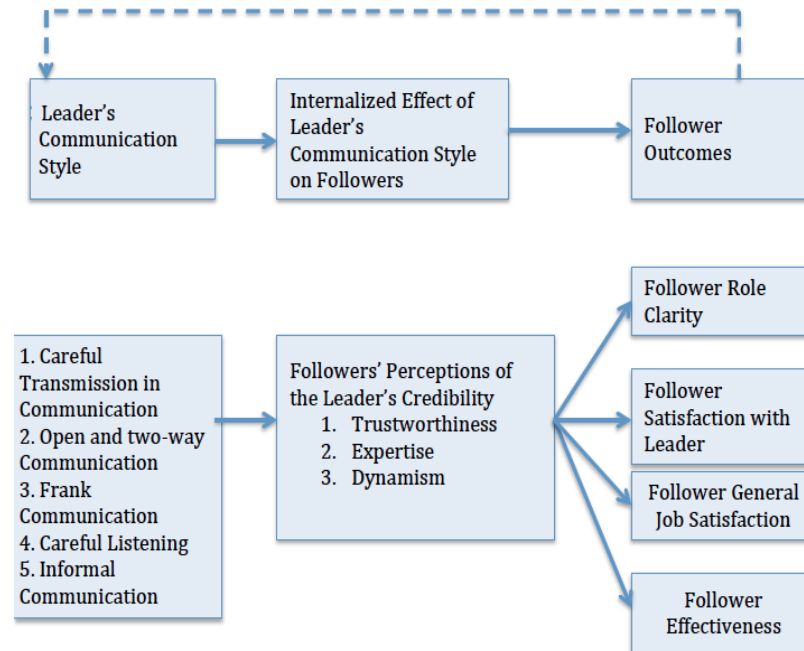


Figure 10.5: Model of Leader Communication and the Effects on Followers

Effective leaders use referent and expert power

Another more specific domain of leader behaviors that is at the heart of leadership is the exercise of power and influence. French and Raven's (1959) theory of social power proposes five basic sources of influence: reward, coercive, expert, legitimate, and referent (see table 10.5). Those sources of social power that the organization can provide (position power) are distinguishable from those that come from the unique characteristics of the person (personal power). An organization can give an individual the means of rewarding and punishing through incentives, fines, and the authority to fire and discipline. An organization also can provide legitimate authority through clearly spelling out the rights and privileges of a position. The organization is likely to have difficulty, however, in bestowing expert and referent power. Increasing referent power means increasing likability, something that the organization can do little to change. Likewise, although training and education can enhance expertise, there is little assurance that others in the organization will recognize this expertise.

French and Raven's theory is intriguing, but attempts to use these power bases to predict employee performance and satisfaction have yielded trends but few consistent results (Podsakoff & Schriesheim, 1985). As shown in the meta-analysis results in table 10.6, follower perceptions that their leader has expert and referent power are positively related to subordinate performance, satisfaction with the supervisor, and job satisfaction. Perceptions that the leader has coercive power are negatively related to the same variables. Legitimate power and reward power are unrelated with the correlations varying considerably across situations.

The use of personal power (referent power or expert power) appears to achieve more positive outcomes than the use of position power (reward, coercive, and legitimate power). The overreliance on position power has negative consequences. In a series of studies demonstrating that position power can corrupt, Kipnis (1976) found that supervisors who are given position power, such as the power to give pay raises, to deduct pay, to transfer and to fire, are more likely to use these influence tactics than personal persuasion. Supervisors given a high degree of reward and coercive power are also more likely to attribute subordinate compliance to their use of reward and coercive power than to their followers' efforts or abilities. Finally, supervisors with a high degree of position power are more likely to perceive their followers negatively and to have an exalted view of their own abilities. Other research suggests that those made to feel powerful are more likely to cheat, evade taxes, keep stolen merchandise, and break the speed limit than those made to feel less powerful (Lammers, Stapel & Galinsky, 2010). Coupled with these moral transgressions is the hypocritical belief that they are entitled to behave as they do.

While power can corrupt, a lack of position power also creates problems. One study reports that withdrawing from supervisors their ability to administer bonuses is associated with more coercive treatment of subordinates (Greene & Podsakoff, 1981). The most reasonable conclusion is that supervisors need enough position power to carry out their responsibilities, but they also need to know how to use personal sources of power. One could speculate that position power in combination with a lack of personal power is the most dangerous combination. Based on a series of experiments, Lammers et al (2010) conclude that "... the powerless collaborate in reproducing social inequality. The powerful impose more normative restraints on other people, but believe that they themselves can act with less restraint. The less powerful are less inclined to impose norms on other people, but more rigidly follow these norms themselves" (p. 743).

Instructions: Below is a list of statements which may be used in describing behaviors that supervisors in work organizations can direct toward their subordinates. First carefully read each descriptive statement, thinking in terms of your supervisor. Then decide to what extent you agree that your supervisor could do this to you. Mark the number which must closely represents how you fee. Use the following numbers for your answers:

- (5) = strongly agree
- (4) = agree
- (3) = neither agree nor disagree
- (2) = disagree
- (1) = strongly disagree

*My supervisor can*

**Reward Power**

- 02. increase my pay level
- 38. influence my getting a promotion

**Coercive Power:**

- 18. make my work difficult for me
- 21. make things unpleasant here.

**Legitimate Power**

- 07. make me feel that I have commitments to meet
- 39. give me the feeling I have responsibilities to fulfill.

**Expert Power:**

- 31. provide me with sound job-related advice.
- 40. provide me with needed technical knowledge

**Referent power:**

- 03. make me feel valued
- 12. make me feel important

Table 10.5: Sample items from Measure of Bases of Power

Basis of Leader's Social Power					
Outcome	Legitimate	Reward	Coercive	Expert	Referent
Satisfaction with Supervisor	-.04	.04	-.30*	.47*	.39*
Job Satisfaction	.01	.04	-.17*	.21*	.11*
Job Performance	.09	.17*	-.04	.28*	.10

Correlations between social power and outcomes are mean sample size weighted uncorrected correlations. \* = confidence interval for correlation excludes zero.

Table 10.6: Correlations of French and Raven Power Bases with Outcomes

Influence tactics refer to what the individual actually does to change others. An example of the latter is the Yukl and Tracey (1992) typology of influence tactics. In attempting to influence others, people in leadership roles may exert pressure, appeal to those above them, promise benefits in exchange for compliance, form coalitions, ingratiate, use rational arguments, inspire through appealing to values and ideas, allow others to participate in decisions, and use legitimate authority. The findings suggest that people in leadership roles are more likely to use consultation, rational persuasion, and inspirational appeals than any other tactic. The use of rational persuasion and ingratiation are the most effective of the influence strategies whereas assertiveness is the least effective (see meta-analysis results reported by Higgins, Judge & Ferris, 2003 in table 10.7).

Influence tactic	Outcome	k	N	$r_{uc}$	$r_c$
<b>Ingratiation</b>					
	Performance evaluation	27	3090	.23*	.35
	Extrinsic success	23	2975	.09*	.11
<b>Self-promotion</b>					
	Performance Evaluation	11	1774	.03	.01
	Extrinsic success	9	1813	.01	.01
<b>Rationality</b>					
	Performance Evaluation	4	547	.32*	.50
	Extrinsic success	5	907	.10*	.12
<b>Assertiveness</b>					
	Performance Evaluation	4	547	-.12*	-.19
	Extrinsic Success	5	940	.07*	.08

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = confidence interval for correlation excluded zero.

Table 10.7: Correlation of Influence Tactics with Specific Work Outcomes  
Points to ponder:

1. Power is the potential to influence whereas influence is the actual attempt. Describe how a person in a leadership role might use each of the specific influence tactics to acquire each of the bases of power.
2. Why is it that reward and legitimate power show such low relations with the success of the person in the leadership role compared to referent and expert power?
3. Ponder your preferences with regard to the various types of power. What are you most inclined to use and why?

Effective leaders manage conflict



Leadership in an organization involves resolving conflicts among followers. Blake and Mouton (1964) distinguish styles of conflict management along the two dimensions of their grid theory: concern for people and concern for task (see figure 10.6). Withdrawal is a style in which individuals psychologically and physically leave the situation. This approach is characterized by low concern for task and low concern for people. In smoothing individuals attempt to minimize differences and accentuate communalities. This style purportedly reflects a great concern for people but little concern for task. Forcing occurs when leaders emphasize the task over people. Here the leader comes up with a solution and pressures others in the situation to accept this solution. In compromise the leader tries to balance concerns for task and people without maximally satisfying either. The leader attempts to get the conflicting parties to split the difference with one giving up something in return for a concession from the other. Finally, there is problem solving, which Blake and Mouton espouse as the best approach. Here there is high concern for task and people, as individuals openly exchange information and seek a solution to the basic sources of the conflict.

The questionnaires measuring styles of conflict resolution are typically based on the Blake and Mouton model. These questionnaire measures include Thomas and Kilmann's (1974) Management of Differences Exercise (MODE), Rahim's (1983) Organizational Conflict Inventory and Hall's Conflict Management Survey (Shockley-Zalabak, 1988). Research evaluating the most frequently used of these measures, the MODE questionnaire, reports moderate support for the underlying theory (Van de Vliert & Kabanoff, 1990; Kabanoff, 1987). To take a version of a typical grid-based conflict management questionnaire go to the following link:

<http://academic.engr.arizona.edu/vjohnson/ConflictManagementQuestionnaire/ConflictManagementQuestionnaire.asp>

A problem with the measures patterned on the Blake and Mouton approach is that they fall short of the measurement standards that are expected of psychological instruments. The reliance on self-reports is also a problem. Kabanoff (1987) reports that self-descriptions of individuals on the MODE are unrelated to how their peers rate them on the five styles. The chief weakness, however, is the continued reliance on the grid approach of Blake and Mouton. The lack of support for the universal superiority of the 9, 9 style suggests that theorists should seek a more solid conceptual foundation on which to base their investigations of conflict resolution.

Points to ponder:

1. What style of conflict resolution do you prefer in your own life? When is it effective and when is it not so effective?
2. Do you think that each of the five styles of conflict resolution in the figure correspond to the combination of concern for people and task stated in this figure? Why or why not?
3. Recall instances of leaders who successfully resolved a conflict. What did they do and why were they successful? Now recall instances of leaders who failed in attempts to resolve a conflict. What happened and why were they unsuccessful?
4. To what extent the incidents of successful and unsuccessful conflict resolution fit the model of conflict resolution styles discussed here?

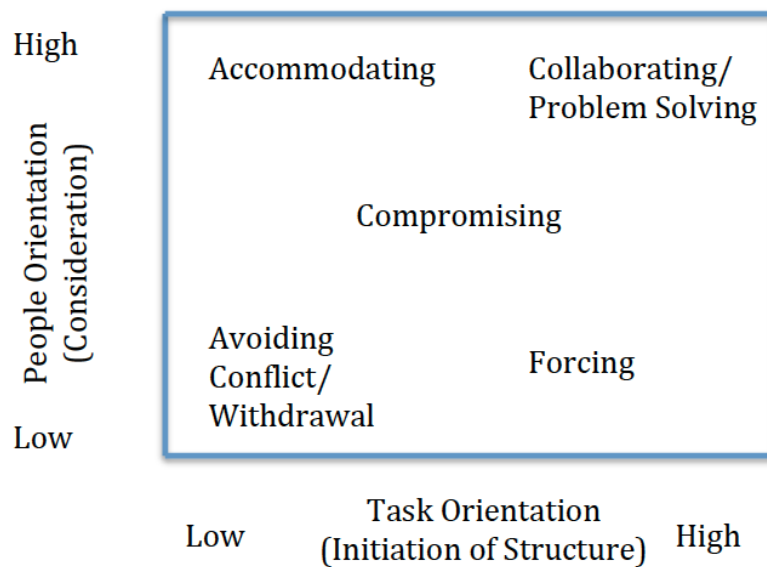


Figure 10.6: Styles of Conflict Resolution

Effective leaders are charismatic, inspirational, and transformational

The reader may have some doubts at this point as to whether the various behaviors approaches really captured the essence of leadership. Perhaps the reader shares the popular view of leadership as something special, unique, and almost mystical in nature. Psychologists have attempted to subject leadership to dispassionate scientific analysis and, in the process, they have stripped away much of the romance associated with the concept. While this research has led to insights into factors associated with leader effectiveness, some theorists have come to believe that there is something to the romantic view that research and theory need to recapture. Specifically, leaders such as Martin Luther King, Jr., Winston Churchill, and Adolph Hitler did not simply wield influence but profoundly changed the lives of many of their followers. Bass (1990) distinguishes among three concepts of leadership that incorporate this aspect of leadership and that are receiving increasing attention from researchers: charismatic, inspirational, and transformational leadership. All of these bear some resemblance to the personal sources of power (referent and expert) in the French and Raven model discussed earlier.

#### The charismatic leader.

The concept of the charismatic leader dates back to the writings of Max Weber (1924/1947, pp. 358 - 359) who described the charismatic leader as "set apart from ordinary men and treated as endowed with supernatural, superhuman, or at least . . . exceptional powers and qualities . . . (which) are not accessible to the ordinary person but are regarded as of divine origin or as exemplary, and on the basis of them the individual concerned is treated as a leader." There is a certain amount of craziness involved in Weber's depiction of charisma in that the leader so motivates followers that they will go to almost any extreme to fulfill the leader's mission. Although the charismatic leader is believed to possess extraordinary characteristics by followers,

it is important to recognize that charisma as Weber and others have described it derives not only from the leader but also from the characteristics of the followers, the situation, and the relationship of the leader and followers. Trice and Beyer (1986) described charismatic leadership as a process in which an individual with extraordinary personal attributes successfully implements a radical solution in a crisis. Repeated successes of the leader cause followers to identify with the leader and imbue him or her with almost superhuman powers.

House's (1977) theory of charismatic leadership, which builds on Max Weber's original conception, describes charismatic leaders as communicating to subordinates basic values, the collective identity of the group or organization, long-term goals, and followers' worth and efficacy as individuals. Moreover, charismatic leaders are likely to convey confidence in their own abilities as well as those of their followers. As a consequence of these actions, followers are motivated to strive to achieve high levels of performance as a consequence of linking their self-esteem to task successes. House (1977) further proposes that charismatic leaders emerge and are effective when the means of achieving goals are unclear, when it is not possible to clearly link extrinsic rewards to individual performance, and when the organizational and environmental conditions are unstable. In a test of some of these notions, the charisma of all the U.S. presidents from George Washington to Ronald Reagan was rated on the basis of historical documents (House, Spangler, & Woycke, 1991). The findings indicate that the charisma shown by a president is shaped both by the personality of the president and by the situation over which he presides. The extent of charisma is positively related to the president's need for power, power inhibition, and the magnitude of the crises he faced during his administration, but negatively related to his need for achievement. In turn, the more charismatic the president, the more effective he is in dealing with the economy and domestic affairs.

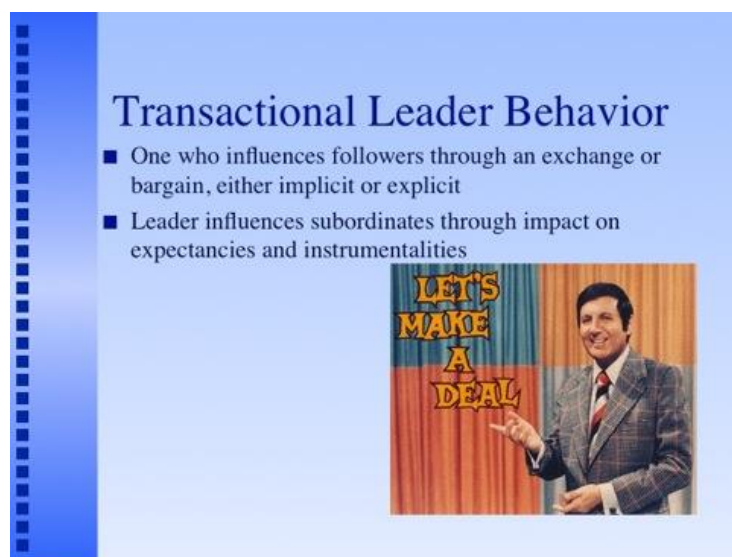
#### The inspirational leader.

Followers are personally attracted to the personal attributes of the charismatic leader, but followers of an inspirational leader are more influenced by the goals of the leader rather than his or her personal attributes. An inspirational leader states uplifting goals and then increases the confidence of followers that they can achieve these goals (Bass, 1990). Envisioning is a crucial skill in inspirational leadership and involves "creating of an image of a desired future organizational state that can serve as a guide for interim strategies, decisions, and behavior" (Bass, 1990, p. 214). At the same time that they envision, inspirational leaders enable and empower followers by obtaining resources they need, removing constraints, and showing them how to accomplish their objectives. This may involve giving employees autonomy and discretionary opportunities, getting support from higher level authorities for their efforts, and providing frequent encouragement. Furthermore, leaders can promote enabling by stressing that everyone is a winner and can constantly learn and improve. Leaders also encourage taking risks and make clear to followers that mistakes are tolerated. Additionally, an inspirational leader intellectually stimulates followers by engaging them in a creative process of problem solving, encouraging them to get out of their habitual routines, and stimulating innovative solutions. Impression management is another important aspect of inspirational leadership. Such leaders frequently project an attractive image that inspires confidence and reinforces the values and goals of the leader (Bass, 1990).

## Transformational leadership.

Burns (1978) contrasts transformational leadership and transactional leadership. A transactional leader influences followers through an implicit or explicit exchange. In other words, the leader and follower strike a bargain in which followers devote energy and time to pursuing goals that the leader sets forth and, in return, the leader provides followers with material rewards and security. In contrast to this type of leader, the transformational leader changes the values, needs, beliefs, and attitudes of followers. A somewhat different approach is to view transformational leaders as using and expanding upon transactional leadership tactics (Bass, 1990). In this approach, transformational leadership contains elements of both the charismatic and inspirational styles. A variety of behaviors are associated with transformational leadership, but they appear to fall into the following six categories (Podsakoff, MacKenzie, Moorman, & Fetter, 1990):

1. Identifying and articulating a vision. Behavior on the part of the leader aimed at identifying new opportunities and developing, articulating, and inspiring others with his or her vision of the future.
2. Providing an appropriate model. Behavior on the part of the leader that sets an example for employees to follow that is consistent with the values the leader espouses.
3. Fostering the acceptance of group goals. Behavior on the part of the leader aimed at promoting cooperation among employees and getting them to work together toward a common goal.
4. The leader's expectations for excellence, quality, and or high performance on the part of followers.
5. Providing individualized support. Behavior on the part of the leader that indicates that he/she respects followers and is concerned about their personal feelings and needs.
6. Intellectual stimulation. Behavior on the part of the leader that challenges followers to re-examine some of their assumptions about their work and rethink how they can work more effectively (p. 112).



Although the research is limited and subject to numerous alternative explanations and methodological issues, the findings generally support the notion that charismatic, inspirational, and transformational leadership are associated with higher satisfaction and performance. The

results of a meta-analysis examining the correlations of the MLQ leadership questionnaire dimensions with leader effectiveness are summarized in table 10.8. As seen here, substantial positive correlations are found between leader effectiveness and the dimensions associated with transformational leadership. However, the average correlations with the dimensions associated with transactional leadership are much lower and quite varied (i.e., they included both positive and negative correlations).

Training programs have been developed to instill the charismatic skills shown in research to characterize effective leaders. In one program, trainees are instructed in "modeling (the use of exemplary behavior), appearance, body language, and verbal skills (with an emphasis on rhetoric [word choice]), metaphors, analogies, and paralanguage (word intent)" (Conger & Kanungo, 1988, p. 317; Howell & Frost, 1989). Leaders are also taught how to express confidence in subordinates, the use of participative leadership, ways of providing autonomy from bureaucratic restraints, and goal-setting techniques. In another program, managers are taught how to envision and to inspire, by assigning exercises in which "executives are asked to talk about how they expect to spend their day at some future date, say five years hence, or what they expect their organization to look like at some future date" or write a business article about their organization's future (Bass, 1990, pp. 215-216). Whether training can actually allow an organization to develop its own charismatic, inspirational, or transformational leaders is open to question. Perhaps some people, because of their individual characteristics, simply cannot effectively adopt these styles. There is also the danger of manufacturing actors who lack values, vision, and ideas but can manipulate followers. Still, the needs for leadership to cope with present and future crises in organizations and in society are so great that any attempt to develop skills in inspiring and transforming followers is worth a try.

Organizational Citizenship Behavior (OCB)	k	N	$r_{uc}$	$r_c$
Charisma	47	6,485	.62*	.71
Individualized consideration	41	6,232	.53*	.62
Intellectual Stimulation	45	6,360	.51*	.60
Contingent Reward	43	7,163	.34*	.41
Management-by-Exception	41	6,948	.04*	.05

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = confidence interval for correlation excludes zero.

Table 10.8: Correlations of MLQ dimensions and leader effectiveness

Points to ponder:

1. Distinguish among transactional, transformation, inspirational, and charismatic leaders. Provide examples of each from leaders you have observed.
2. Go back to the motivation chapter and show how transactional vs. transformational leadership approaches are rooted in the motivation of the follower.
3. Do we need to have theories of charisma and transformational leadership? Why couldn't one argue that these constitute a return to the romance of leadership that we discussed at the beginning of this chapter as antiquated and non-scientific?
4. Can you train charisma? What are the possible limitations to the attempt to develop charismatic leaders in the classroom?
5. Where do you fall on the dimensions measured in the MLQ? Do you believe you could change your own behavior and attitudes so as to become higher or lower on one or more of these dimensions? Why or why not?

Effective leaders develop high quality relationships with followers (i.e., high LMX)

An implicit assumption in much of the work on leader behavior is that leaders act the same toward all their subordinates. For instance, in measuring consideration and initiation of structure using the Ohio State leadership scales, subordinates' ratings are averaged to form a single measure of their leader's position on each dimension. Likewise, when managers describe their own styles, they typically are asked how they deal with subordinates as a group rather than how they deal with individual subordinates. If the average description of leader is high on initiation of structure, it is assumed that the leader initiates structure for all followers. Similarly, if the average description of a leader is high on consideration, the assumption is that the leader is considerate with all his followers.

Is this assumption correct? Some researchers question whether the leader's behavior is uniform. Based on these doubts, an alternative model of leadership is proposed called the leader-member exchange (LMX) model (Graen, 1976; Graen & Scandura, 1987). This model starts with the assumption that the immediate supervisor is the primary influence in defining the social role of organizational members. The supervisor develops a close relationship with some subordinates and serves as a leader for these in-group people. The quality of the exchange is higher for this in-group as the leader relies on referent and expert power. Most subordinates are in the out-group. The quality of exchange is lower for this group as the leader relies mainly on formal authority, rules, and policies. Although the LMX approach is not without its critics (Dienesch & Liden, 1986), the essential point of the LMX model is well taken: One should examine the relationships that emerge between the leader and individual followers rather than assuming the leader treats all followers the same. Below are the questions used by in the LMX scale that is most often used to measure quality of relationships. As an exercise, the readers are asked to think of a recent supervisor or manager that they have worked for and describe their relationship to that person using these items. Is the relationship with that supervisor low, moderate or high on the LMX and what do the readers believe are the consequences of this level of LMX for how well they performed and their work-related attitudes?

Items in the Leader-Member Exchange (LMX) Questionnaire

1. Do you know where you stand with your leader?
2. How well does your leader understand your job problems and needs?
3. How well does your leader recognize your potential?
4. What are the chances your leader would "bail you out" at his/her expense?
5. What are the chances your leader would help you solve problems in your work?
6. I have enough confidence in my leader that I would defend and justify his/her decision if he/she were not present to do so.
7. What is the quality of your working relationship with your leader?

A relationship between a leader and follower that is described positively on these questions is one in which the follower trusts and supports the follower and rewards the follower with both formal outcomes such as pay increases as well as informally with praise (Dienesch & Liden, 1986). According to the theory underlying LMX, followers reciprocate this positive treatment in their high levels of performance of tasks, commitment to the leader and organization, and citizenship behaviors.

So what are the correlations between LMX scores and outcomes such as follower performance, satisfaction, stress, organizational citizenship, and turnover? The findings of several meta-analyses show that a high quality relationship between the leader and followers is indeed associated with a variety of positive outcomes (Dulebohn, Bommer, Liden, Brouer & Ferris, 2012; Chiaburu, Smith, Wang and Zimmerman (2014; Gerstner & Day, 1997; Ilies, Nahrgang & Morgeson, 2007; Rockstuhl, Duebohn, Ang & Shore, 2012; Sin, Nahrgang & Morgeson, 2009). Table 10.9 summarizes the results of one of the most comprehensive of these meta-analyses (Gerstner & Day, 1997). The findings indicate that the more positive the relationship of the subordinate with the leader (i.e., the higher the LMX), the higher the subordinate's performance, general competence, satisfaction, commitment to the organization, and perceived clarity of role expectations. Also, the more positive relationship with the leader, the lower the intentions to turnover and role conflict.

Outcome	k	N	$r_{uc}$	$r_c$
Performance ratings (leader LMX)	12	1,909	.41*	.55
Performance ratings (member LMX)	30	4,218	.28*	.30
Objective performance	8	982	.10*	.11
Satisfaction with supervision	27	5,302	.62*	.71
Overall satisfaction	33	6,887	.46*	.50
Organizational commitment	17	3,006	.35*	.42
Role conflict	12	3,728	-.26*	-.31
Role clarity	14	4,105	.34*	.43
Turnover	7	856	-.03	-.04
Turnover intentions	8	1,074	-.28*	-.31
Member competence	15	3,880	.26*	.28

K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = confidence interval for correlation excluded zero.

Note: Performance ratings were made by supervisors. Leader LMX was the LMX reported by the leader. Member LMX was LMX reported by the follower. Member competence did not include performance ratings but instead was a general measure of test scores and other measures of the member's KSAs.

Table 10.9: Correlations between LMX and Potential Outcomes.

A second meta-analysis reports that LMX is positively related to the citizenship behaviors of followers (Ilies, Nahrgang and Morgeson, 2007). As shown in table 10.10, the higher the LMX, the more likely that followers are to act as a good citizen by going beyond what is expected of them both with regard to the organization and with regard to individual coworkers. A somewhat stronger relationship is found when individuals are the targets of the citizenship than when the organization is the target. This suggests that followers are more likely to reciprocate when they are treated well when the relationship is personal than when it involves a relatively impersonal relationship between the employee and the organization. Because the research on LMX is correlational in nature, the causal direction reflected in these correlations is debatable. Is LMX the cause of good treatment of followers or does good treatment come first and shape the LMX? Also, is LMX the cause of outcomes or do outcomes cause the LMX? The authors of one meta-analysis attempt to untangle these causal alternatives and came to conclusion that LMX mediates the effects of some leader treatment of followers on outcomes (Dulebohn, Bommer, Liden, Brouer & Ferris, 2012). The quality of a leader-follower relationship increases (i.e., the LMX increases) as (1) leaders increase their use of contingent rewards by providing feedback, rewards and recognition for good performance, and (2) leaders exhibit transformational leadership by communicating a vision and encouraging acceptance of group goals. In turn, as LMX increases, the effectiveness of followers increases as indicated by performance and commitment of the followers to the organization. The strongest evidence for mediation is found for the mediating effects of LMX in the effects of contingent reward behavior on outcomes.

Organizational Citizenship Behavior (OCB)	k	N	$r_{uc}$	$r_c$
Overall OCB	59	9,324	.32*	.37
Target of the OCB				
Individuals	27	5,296	.33*	.38
Organization	21	4,119	.27*	.31
Rating Perspective				
Same perspective	18	3,808	.47*	.54
Different perspective	38	7,098	.28*	.32



K = number of correlations; N = number of participants;  $r_{uc}$  = mean weighted correlation;  $r_c$  = correlation corrected for artifacts; \* = confidence interval for correlation excludes zero.

Table 10.10: Correlations between LMX and Organizational Citizenship Behavior (OCB)

There are several issues and caveats to consider in the research on LMX. The association between LMX and outcomes is stronger in some situations than in others, indicating that there are moderators of the positive correlations typically found between LMX and outcomes. There is a much stronger positive correlation between LMX and citizenship behavior when the follower rates the LMX as well as provides the information on the outcome than when different sources are provided for the LMX and the outcomes (Ilies, Nahrgang and Morgeson, 2007).

A second potential issue is that follower reports of LMX are not strongly related to leader reports (Sin, Nahrgang & Morgeson, 2009). In a meta-analysis involving 64 independent samples and 10,884 dyads, researchers report that overall correlation between leader and follower LMX reports is moderate in magnitude ( $\rho = .37$ ). Interestingly, this same meta-analysis reveals that agreement between leader and follower is substantially larger for longer-term relationships than for short-term relationships. Apparently, with increased length of a relationship, the intensity of the leader/follower interaction increases and both parties arrive at a common perception of the quality of the relationship. One implication is that LMX theory is more accurate in describing what happens in an established relationship between leader and follower than in a relationship in which leader and follower are still getting to know each other.

A third caveat is that the relation of LMX to outcomes is moderated by culture. In individualistic cultures such as found in the United States and Great Britain LMX is more strongly related to outcomes than in collectivist cultures such as China (Chiaburu, Smith, Wang and Zimmerman, 2014); Rockstuhl, Duebohn, Ang & Shore, 2012). One possible explanation is that in an individualistic society, individuals view themselves as independent from others, place more emphasis on their personal goals, and view themselves as equals to others. As a consequence, followers in an individualistic culture are more likely to base their reactions to those in supervisory positions on the personal relationship they develop with the persons in those roles. By contrast, those in a collectivistic society see themselves as interdependent with others, are more likely to see their personal interests as aligned with collective interests, and emphasize their duties and obligations to the groups. As a consequence, followers in an individualistic culture are less likely influenced by their personal relationship with the supervisor and more likely to respect those in authority regardless of the perceived relationship or treatment by the supervisor. Perhaps as a result of these cultural differences, the evidence indicates that in individualistic Western cultures the correlations between LMX and task performance, organizational commitment, and transformational leadership are stronger than in collectivistic Asian cultures.

Points to ponder:

1. The LMX captures the relationship of the person in the leadership role and the individuals who are in follower roles. How is the quality of the relationship different from what was

measured in the Ohio State Leadership studies and in other research on specific leader behaviors?

2. One might hypothesize that if a leader can establish a high quality relationship with those in follower roles that the specific behaviors that the leader exhibits become less important. How might this occur? Do you agree?

3. Can you think of times where you had a leader who was inconsiderate, disorganized, or in some other ways violated what is seen as good leader behaviors but who was effective because of the high quality relationship with followers? Describe what occurred and why.

### Effective Leaders Manage Perceptions: The Cognitive Approach

The research has identified the situations, traits, and behaviors associated with leader effectiveness. The findings show, however, that even if leaders exhibit the right behavior, possess the requisite traits, and are in situations that make it easy to lead, they still may not influence followers or achieve their objectives. The basic assumption behind the cognitive approach is that leadership is the result of people's attempts to make sense of the world around them. If followers believe a person is a leader, this belief is potentially self-fulfilling and can ensure the influence and effectiveness of the leader. In some cases, perceptions are even more important than reality. For instance, one study found that supervisors are more effective the more they monitor their subordinates (Komaki, 1986), supposedly because monitoring allows the supervisor to provide performance-contingent rewards and punishments. Contrary to this behavioral interpretation, however, another experiment suggested that the message that the monitoring conveys to followers (e.g., "I am greatly concerned about productivity and expect you to do well") is as important as the rewards and punishments that follow from the monitoring (Larson & Callahan, 1990).

### Categorization in leadership perception

The process by which persons are perceived as leaders follows the same basic social cognitive processes as occur in other contexts. In the attempt to make sense of the physical and social world, people use cognitive structures in the form of schemas and cognitive categories. These are essentially beliefs that help them deal with the huge amount of information that they must process in their day-to-day interactions with others. Cognitive categories allow them to group together objects, individuals, events, and social roles that they consider equivalent. They carry around vivid instances of these categories (called prototypes) that they use in deciding what belongs and what does not belong in the category. When a critical level of similarity with the prototype is surpassed, they then assign the object, person, event, or role to the category with which the prototype is associated. Another cognitive structure that can enter into this process is the schema, which is a network of perceived relationships among beliefs or ideas. For instance, people might believe that introverted people are also unfriendly, cold, and aloof. The schema in this case is the belief they hold about how these traits are interrelated. This type of schema is also known as an implicit personality theory. Schemas and cognitive categories are similar in many respects and appear to work together in the perception of others. For instance, people might see a quiet person, who is thin, pale, and reads a lot. All of these acts are consistent with what they expect of the prototypic intelligent person. On the basis of these behaviors they categorize him as

intelligent. Once categorized they come to believe that the person has other attributes (e.g., unfriendly, clumsy) on the basis of the schema held for intelligence.

### Structure of cognitive categories used in describing leaders.

The same basic cognitive processes that shape how people perceive a chair as a chair, a table as a table, and a flower as a flower also influence whether a person is seen as a leader or not (Lord, Foti, & Phillips, 1982). According to the cognitive categorization model, people develop cognitive structures that organize the way they think about leadership. The categories that are used in identifying leaders are organized into a vertical hierarchy with a general leader category at the top and eleven basic-level categories associated with various contexts located lower in the hierarchy: national political, military, educational, business, religious, sports, world political, financial, minority, media, and labor leaders (Lord et al., 1982). Each of the subtypes is, in turn, broken down into such subcategories as the successful versus the unsuccessful political leader or the evangelical versus the traditional religious leader. In some of their research Lord and his colleagues (Lord, Foti, & DeVader, 1984) describe the cognitive prototypes that are associated with these leadership categories. When students are asked to list the attributes of leaders in each of the eleven basic-level categories these are the most frequent attributes used in describing leaders in declining order of frequency:

1. intelligent,
2. honest,
3. outgoing,
4. understanding,
5. verbally skilled,
6. aggressive,
7. determined,
8. caring,
9. decisive,
10. dedicated,
11. educated, and
12. well-dressed.

Perceiving someone as a leader involves a categorization of the person into leader/nonleader or leader/follower categories and the use of schemas to infer other characteristics of the categorized person (Lord, 1985; Lord et al., 1982, p. 104). The categorization is effortless if several behaviors of the leader clearly fit the person's conception of the good leader. Take, for example, an individual who is well-dressed, eloquent, and forceful. When such clear and vivid behaviors are exhibited, the person is quickly labeled a leader without the observer's carefully thinking about whether the label is deserved. One can compare the categorization process to how mail is sorted into "pigeonholes" at a nonautomated post office (Shaw, 1990, p. 627). Each hole is labeled with the last three digits of a zip code. As letters are sorted, the post office worker does not have to read the name or street address on the letter, or even look at the city or state of the address. The sorter need only glance at the last three digits of the zip code and—zip!—the letter is sorted into an appropriate pigeonhole.

Prototypes of the typical leader and prototypes of the ideal leader are involved in the perception of leadership. A survey conducted with employees in Germany had respondents rate their identification with, commitment to, respect for, and satisfaction with their leaders (Quaquebeke, Graf & Eckloff, 2014). The same employees described the typical leader, the ideal leader, and their current leader on measures of leader prototypes. Evaluations of the leader were more strongly related to how the current leader differed from the ideal leader than to how the current leader differed from the typical leader.

#### Effects of performance cues on perceptions of leadership.

Once a person is labeled as a leader, other behaviors and traits are attributed to the person that are consistent with the observer's conception of a leader. In some cases, these other behaviors and traits are never demonstrated by the person. For example, followers see a person who is labeled as a leader as intelligent and self-confident, despite the lack of direct evidence to support these perceptions. Evidence of this type of process comes from experiments demonstrating the effects of group performance on perceptions of leadership. In one study students watched a tape of the same leader, who was described as having either a highly successful or unsuccessful group (Mitchell, Larson, & Green, 1977). Those who believed the group succeeded perceived the leader to initiate more structure and to show more consideration than subjects who believed the group had performed poorly. This attribution to higher initiation of structure and consideration to leaders who succeed was found even though the behavior of the leader was identical for both groups of subjects. These findings were replicated in other experiments (Cronshaw & Lord, 1987; Rush, Thomas, and Lord, 1977; Lord, Binning, Rush, & Thomas, 1978). The typical explanation is that observers possess beliefs about leadership in the form of schemas or implicit leadership theories in which leaders who display a high degree of initiating structure and consideration are seen as more effective than those who are low on these dimensions. Rather than paying close attention to what the leader actually does, observer preconceptions shape their initial observations and recall of how the leader acted. The result is that much of the variance in leadership ratings is attributable to these preconceptions (Lord, Binning, Rush, & Thomas, 1978). The lesson of these research findings is not only must an individual act like a leader, but also others must perceive the individual to be a leader (Cronshaw & Lord, 1987). Similarly, once labeled as a nonleader, even a highly qualified individual may be unable to overcome this bias.

#### Effective leaders have confidence in their followers

A leader's perceptions of followers can influence how he leads and the outcomes of the leadership on outcomes. Several management theorists propose that the expectations of managers toward their followers are self-fulfilling. The best known of these theorists, Douglas McGregor (1960) distinguishes between theory X leaders, who have little confidence in the ability or motivation of employees, and theory Y leaders, who believe that employees are hard working and decent. McGregor (1960) proposes that in response to a theory X manager, "People, deprived of opportunities to satisfy at work the needs which are now important to them, behave exactly as we might predict—with indolence, passivity, resistance to change, lack of responsibility, willingness to follow the demagogue, unreasonable demands for economic benefits. It would seem that we are caught in a web of our own weavings" (p. 71). On the other hand, McGregor theorizes that if management takes a Theory Y approach and provides the

opportunity for followers to fulfill their self-actualization and esteem needs in the work place, followers will fulfill the expectations of management with highly responsible, creative, and productive behavior.

Eden (1992, 1984, and 1992) attempted to clarify the processes at work in self-fulfilling prophecies in leader-follower relationships (see figure 10.7). The process starts with leader expectations (A) that influence how leaders attempt to lead followers (B). There are two pathways from the leader's behavior to follower performance. In one pathway, the leader's behavior directly shapes the performance perhaps through facilitating performance of the task. The second pathway is one in which expectations play a dominant role. Leaders who have high expectations are likely to behave in ways that convey their high expectations, such as allowing participation. Leaders with low expectations behave in ways that convey these low expectations, such as criticizing, punishing, and allowing minimal input into decisions. As the result of these leader expectations and the associated leader behaviors, followers develop self-expectations for their own competence and motivation (C). The higher the expectation of followers that they can succeed, the more effort and time they devote to organizational tasks (D) and the better they perform (E). Higher performance then confirms and strengthens the manager's expectations for the followers. Managers whose followers perform will continue to have high expectations for future performance.

These processes come full circle as leaders conclude that follower performance supports their initial expectations. If the leader starts with high expectations and the follower performs well, then the leader thinks that this person is a bright, motivated employee. This confirms the high expectations and leads to a continuation of the positive leadership behavior that was partially responsible for the outcome. If the leader starts with low expectations and the follower performs poorly, then the leader concludes that the follower lacks competence or is unmotivated. All these processes are embedded in an organizational culture that can shape both managerial and follower expectations. An organizational culture that is dominated by Theory Y values will encourage high expectations whereas an organizational culture that is dominated by Theory X will encourage low expectations.

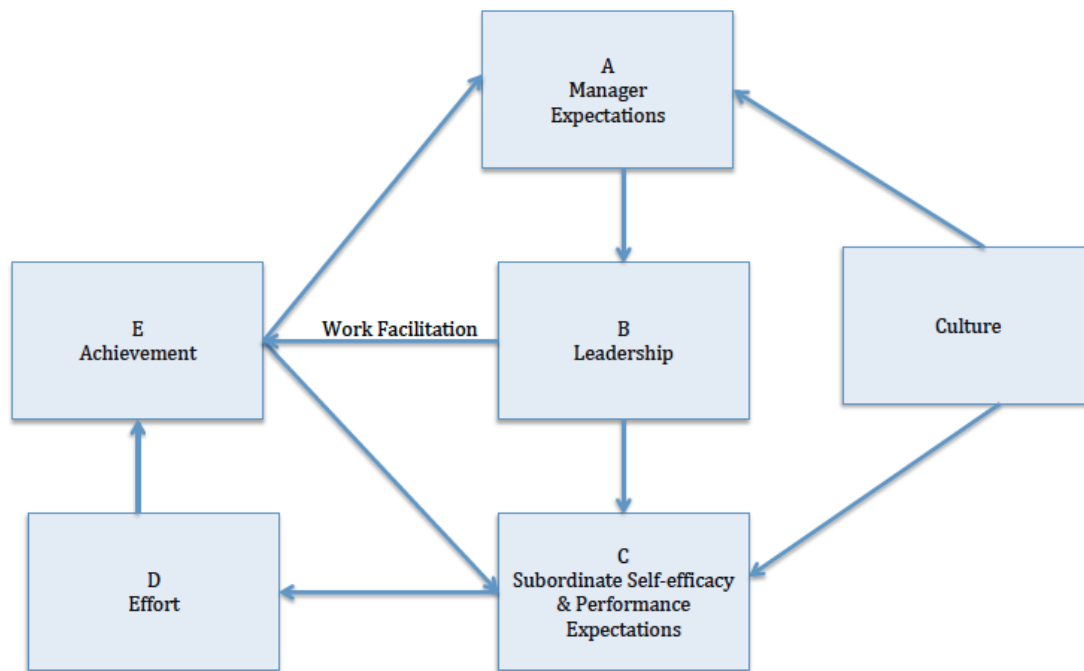


Figure 10.7: Processes by which Manager Expectations Become Self-fulfilling Prophecies

A key component of a self-fulfilling prophecy is the failure of the leader and possibly followers to consider the role the leader plays in influencing the follower's performance. Particularly important in all this are the causal attributions or explanations for the followers' performance. Leaders and followers are not always mindless in responding to what is going on around them but often ask "why" these events have occurred. According to the attribution model of leader-member interactions leaders attempt to explain the causes of subordinate performance and this explanation shapes how they lead the subordinate (Green & Mitchell, 1979). Here are some key conclusions drawn from the research on this model.

\*\*If factors external to the subordinate (e.g., the task, working conditions) are seen as important, the leader is more apt to focus on the situation by changing the task or improving working conditions.

\*\*To the extent that leaders attribute follower performance to internal causes, corrective actions aimed at the follower are likely to follow.

\*\*Leaders are more punitive when followers fail if they attribute the failure to factors internal to and under control of the employee (e.g., lack of effort).

\*\*Likewise, leaders are more participative and considerate in response to high levels of follower performance to the extent that they attribute the good performance to internal factors under the follower's control (e.g., competence and motivation).

The followers' attributions enter into the process in figure 10.7 as mediators of the effects of the leader's actions. Thus, a leader's distrust of followers leads to very close supervision that

prevents the followers from developing the skills necessary to perform the job. Rather than attributing their failures to the leader, however, the followers attribute failure to their own lack of ability and consequently continue to fail in the future. Similarly, if the leader has high expectations, then followers see their own effort and competence as responsible for the success and continue their successful performance.

What is the primary message of this research? People in leadership roles need to become self-aware of their beliefs about followers' motivation and ability, their expectations for followers, and the ways in which behavior can communicate these expectations. Increasing their leadership effectiveness first requires changing the beliefs and expectations they hold for their followers. A belief that is essential to effective leadership is confidence in the competence and motivation of followers. As shown in the research reviewed in this section of the chapter, confidence in followers can become self-fulfilling prophecies. Also, as discussed earlier in this chapter, having confidence in followers is essential to becoming a transformational or charismatic leader.

### Leaders manage impressions

Cognitive process theories imply that people in leadership roles need to do more than adopt the right behaviors or manage the situation. They also need to manage what others believe about their leadership. Effective leadership becomes creating the right image and shaping the belief in superiors, subordinates, peers, and clients that the leader deserves credit for the successes of the group but not the blame for the failures (Pfeffer, 1977). An interesting example of this is found in the letters written to shareholders by chief executive officers (CEOs). Several studies show that the CEOs in these letters take credit when the firm performs well, but attribute poor performance to external factors when the firm performs poorly (e.g., attribute failure to the economy, excessive government regulation) (Salancik & Meindl, 1984; Bettman & Barton, 1983; Staw, McKeachnie, & Puffer, 1983).

There are important caveats in discussing the use of impression management. Obviously, impression management that goes too far is unethical and can produce negative results when the charade is found out and followers lose trust. It is important to recognize, however, that in the highly political environment that characterizes many organizations, most people engage in some degree of impression management, even if it consists of no more than dressing for success. Moreover, impression management is used to achieve good as well as bad ends. Leaders might attempt to take all the credit for successes and magnify their own importance at the expense of followers. On the other hand, impression management might also be a means of enhancing the self-respect and confidence of followers.

### Points to ponder:

1. Provide examples of persons in leadership roles who were in situations favorable to leading, who possessed the necessary traits, and did all the right things, but who failed because of the way they were perceived. Can you think of some U. S. Presidents who failed to manage perceptions? Describe what happened and how perceptions undercut their effectiveness.
2. What is the prototype of the successful leader in Western Culture? How do you think this prototype might differ in other cultures, e.g., in Asian or Latin American cultures?

3. What is a self-fulfilling prophecy and how might it play out in determining the consequences of the leader's expectancies for followers and the followers' expectancies for the leader?
4. Is it dishonest for a leader to manage the impressions that followers have of him or her? Why or why not?

### Effective Leaders Diagnose and Adapt to the Situation: The Contingency Approach

If the readers are still wondering what determines the effectiveness of a leader, the answer of the contingency approach is "it all depends." It depends on the followers of the leader, the tasks that followers must perform, the external environment of the leader and his or her group, the power of the leader, and a variety of other factors that we can call contingencies. John W. Gardner states the essential idea of contingency approaches to leadership: "Leaders come in many forms, with many styles and diverse qualities. There are quiet leaders and leaders one can hear in the next county. Some find strength in eloquence, some in judgment, some in courage."

Each of the theories discussed in this chapter provides valuable insight into a piece of the leadership puzzle, but no one theory is sufficient to account for the complexities of leadership in an organization. To repeat some of the lessons from the trait and behavioral approaches:

- \*Traits and behaviors account for a small amount of variance in leadership emergence and success. They should not be ignored but they are only a small piece of the puzzle.
- \*If one is low on one of the leadership traits or behaviors related to effectiveness, it points to likely weak points that need work.
- \*But there is no one best set of leader traits or one best behavioral leadership style.

The contingency theories of leadership emerged from research demonstrating the conditions under which the various traits and behaviors of leadership are associated with satisfaction and effective performance. The contingency models that have generated the most research are Fiedler's contingency theory, House's path-goal theory', and the Vroom/Yetton/Jago decision model of participative leadership. An approach that has received more attention from practicing managers than from researchers is the Hersey and Blanchard situational theory of leadership. None of these has incorporated all the factors discussed here, but they have taken some promising steps in the right direction.

### Effective leaders change the situation to fit their traits (Fiedler)

A basic assumption in Fiedler's (1978) contingency theory of leadership is that there is a strong trait component to the orientation a manager takes to leadership and one cannot really change that orientation. Some leaders are better in some situations than other leaders and the only realistic thing a leader should do is try to change the situation to fit his or her approach to leadership. The personality trait of concern to Fiedler is measured using the least preferred coworker (LPC) scale (see table 10.11). The readers should take this online version of the LPC to see how they score: <http://practical-management.com/Analytics/Fiedler-LPC.html>

If the reader takes the LPC she would rate the person with whom she has the most difficulty working on several traits, including pleasant-unpleasant, friendly-unfriendly, cooperative-



uncooperative, efficient-inefficient). If she rates this least preferred coworker negatively, she is a low LPC leader. If she rates the least preferred coworker positively, she is a high LPC leader.

But what does the LPC score really mean? In earlier interpretations, Fiedler claims that the LPC is a straightforward measure of leader behavior or style. Thus, a low LPC leader is task-oriented and a high LPC leader is relationships-oriented in interactions with followers. After finding low correlations between the LPC and other measures of leadership style, however, Fiedler shifted to a more complex interpretation. Later he came to believe that the LPC scale is a motivational construct reflecting the leader's hierarchy of concerns in managing other people. The low LPC leader seeks satisfaction through task accomplishment first but if the task needs are fulfilled, this leader shifts the emphasis to relationships. The high LPC leader shows the opposite. The first priority for the high LPC leader is maintaining good interpersonal relations, but once these relationships are assured, this leader shifts his or her focus to the task.

The effectiveness of the leader depends on the leader's LPC score and the favorability of the situation. Situation favorability is the ease with which leaders can manage and results from three components: task structure, leader-member relations, and position power. It is easier to lead, Fiedler argues, when there is a high degree of task structure, followers have great respect for the leader, and the leader has available reward, coercive, and legitimate powers (position power). It is much harder to manage when there is a lack of these conditions. By classifying situations as either high or low on each of these three dimensions of favorability, eight situational categories are identified, ranging from the most favorable to the least favorable. How the leader behaves and the effectiveness of these actions depends on the combination of leader personality and the situation's favorability.

According to Fiedler's contingency theory, the low LPC leader is most effective in highly favorable and highly unfavorable situations. Followers in a highly unfavorable situation need strong direction, and it is in this type of situation that the low LPC leader is most directive in his or her behavior. The low LPC leader's first priority is accomplishing the task but this is not at all assured in the unfavorable situation. As a consequence, the low LPC leader is task-oriented and directive. Task success seems assured at the other end of the continuum where there is task structure, good group relationships, and high position power. Consequently, the low LPC leader focuses less on the task and more on relationships among followers. Again, a directive leader in an unfavorable situation and a people oriented leader in a highly favorable situation are exactly what is needed in these situations and it's what the low LPC leader will provide as a consequence of his LPC trait. While the low LPC leader acts in a way that is appropriate to what is needed in the situation in the two extremes, the high LPC leader is likely to act in a way that conflicts with what is needed in these same situations. Thus, a high LPC leader in the unfavorable situation is most concerned with relationships when the primary focus is on the task. In the favorable situation the same leader is most concerned with the task when the group does not need the structure.

Think of the different people with whom you have ever worked....in jobs, in social clubs, in student projects, or whatever. Now think of the one person with whom you could work least well, that is, the person with whom you had the most difficulty in getting a job done. This is the one person (a peer, boss, or subordinate) with whom you would least want to work. Describe the person by circling numbers at the appropriate points on each of the following pairs of bipolar adjectives. Work rapidly. There are no right or wrong answers.									
Pleasant	8	7	6	5	4	3	2	1	Unpleasant
Friendly	8	7	6	5	4	3	2	1	Unfriendly
Rejecting	1	2	3	4	5	6	7	8	Accepting
Tense	1	2	3	4	5	6	7	8	Relaxed
Distant	1	2	3	4	5	6	7	8	Close
Cold	1	2	3	4	5	6	7	8	Warm
Supportive	8	7	6	5	4	3	2	1	Hostile
Boring	1	2	3	4	5	6	7	8	Interesting
Quarrelsome	1	2	3	4	5	6	7	8	Harmonious
Gloomy	1	2	3	4	5	6	7	8	Cheerful
Open	8	7	6	5	4	3	2	1	Guarded
Backbiting	1	2	3	4	5	6	7	8	Loyal
Untrustworthy	1	2	3	4	5	6	7	8	Trustworthy
Considerate	8	7	6	5	4	3	2	1	Inconsiderate
Nasty	1	2	3	4	5	6	7	8	Nice
Agreeable	8	7	6	5	4	3	2	1	Disagreeable
Insincere	1	2	3	4	5	6	7	8	Sincere
Kind	8	7	6	5	4	3	2	1	Unkind

Table 10.11: Least Preferred Coworker (LPC) Scale

Table 10.12 presents the octants describing situational favorability. Octant I represents the most favorable set of conditions; octant VIII represents the worst. The specific ordering of octants is based on the assumption that a leader-member relation is the most important factor, whereas position power is the least important. In the highly favorable situations (I, II, and III) and the least favorable situation (VIII) the low LPC leader is more effective than the high LPC leader. In the moderately favorable situations (IV, V, VI, VII) the high LPC leader is more effective. Surveys of the correlations between the LPC measure and performance in each of the eight conditions tend to support the predictions of the model (Strube & Garcia, 1981; Vecchio, 1983; Peters, Hartke, & Pohlmann, 1985). Consistent with Fiedler's predictions, a positive correlation between LPC and performance is found in the middle octants (see the results of a meta-analysis below). A positive correlation indicates that high-LPC leaders are more effective in these situations. Also consistent with the model, a negative correlation in the unfavorable octants, indicates that a low-LPC leader is effective in these situations. The pattern of results found in the research generally supports the model's predictions. Fiedler's contingency theory has some interesting implications for practice. As a first step, he suggests measuring each manager's leadership orientation (using the LPC index) and the favorability of the situation (on position power, leader-member relations, and task structure). He recommends then assigning leaders to

situations that match their LPCs. If the situation is moderately favorable, a high-LPC leader would provide the best fit. If the situation were highly unfavorable or highly favorable, a low-LPC leader would provide the best fit. If the leader's LPC does not match the situation, then change the situation to provide a better fit. Thus, if a high-LPC leader is in a highly unfavorable situation, then one alternative is to move situational favorability toward the moderate position on the continuum by adding to the leader's position power, improving relations with the group, or structuring the task. Because Fiedler defines LPC as a trait, he believes that changing the leader is much more difficult than engineering the situation to suit the leader. LEADER MATCH is a training program that instructs leaders in how to assess their own style and then modify the situation to fit this style (Fiedler, Chemers & Mahar, 1976). The small amount of research evaluating this practical application of the Fiedler model suggests that the training program has beneficial effects in improving leader effectiveness (Fiedler & Mahar, 1979).

Situation Favorability	Octant	Leader Member Relationships	Task Structure	Position Power	Correlation of LPC and Performance
High	I	Good	High	Strong	-.42*
	II	Good	High	Weak	-.42*
	III	Good	Low	Strong	-.33*
	IV	Good	Low	Weak	.28*
	V	Poor	High	Strong	.45*
	VI	Poor	High	Weak	-.01
	VII	Poor	Low	Strong	.13*
Low	VIII	Poor	Low	Weak	-.50*
*Direction of the correlation supports predictions of the Fiedler Contingency theory.					

Mean correlations found for each of the eight points on the situation favorability scale. \* = statistically significant.

Table 10.12: Results of Field Research Testing Fiedler's Contingency Theory

Despite empirical support, numerous critics identify weaknesses in the logic and the research underlying Fiedler's theory (Ashour, 1973; Evans & Dermer, 1974; Graen, Alvares, Orris, & Martella, 1970). Perhaps the most damning criticisms are aimed at the construct validity of the LPC measure. As noted, Fiedler has changed his views several times on what the LPC is, viewing it at one time as a measure of leader style and later as a measure of leader priorities. Another problem is the tendency in some of the research to categorize situational favorability after the data are collected rather than starting with *a priori* classifications of the situation. Despite its shortcomings, Fiedler's theory is valuable in bringing attention to how a leader can achieve success. Rather than attempting to change one's behavior, in some situations it is more realistic to accept one's personality and other dispositions and try to bring the situation in line with these traits. Whether Fiedler's model is the best framework for understanding how this is done is doubtful, but it is a start.

Effective leaders modify their participativeness to fit the situation

More organizations are attempting to involve employees in decision making in order to improve productivity and quality. Although the use of participation has gained in popularity in U.S.

companies, the research on leadership suggests that participative leadership is not always effective and that autocratic leadership has its place. Figures 10.8 and 10.9 summarize the findings from a meta-analysis that examined the relation of employee participation with employee satisfaction and productivity (Miller & Monge, 1986). As seen below by the positive correlations presented in the diagram for satisfaction as the dependent variable, to the extent that employees perceive that they are allowed to participate in decision making, their satisfaction is higher. However, the second diagram in which the dependent variable is productivity, the findings are more complex and not as clear. Although there is a small positive correlation between participation and productivity in field settings where there is no goal setting involved ( $r = .27$ ), the correlation is only  $r = .11$  where goal setting is involved. Clearly, the extent to which participation lead to increased productivity depends on situational factors, i.e., the extent to which participation will work is contingent upon other factors.

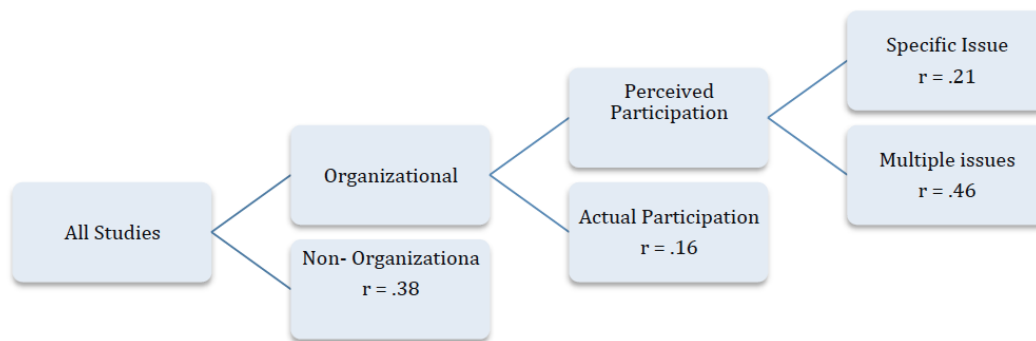


Figure 10.8: Miller and Monge (1986) Meta-analysis:  
Nonorganizational vs. Organizational Studies

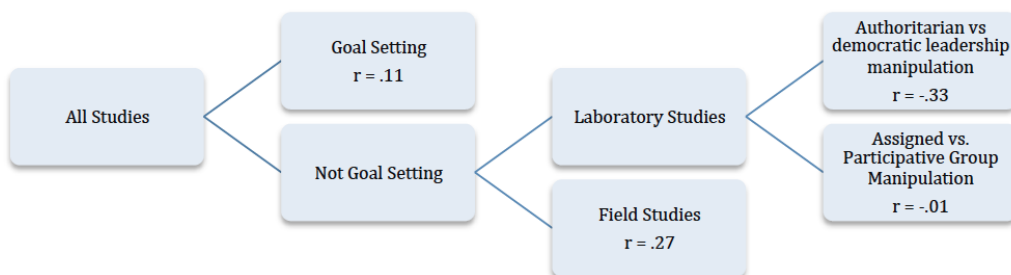


Figure 10.9: Miller and Monge (1986) Meta-analysis: Goal setting Effects

The Vroom/Yetton/Jago model of leader decision making is intended to help managers decide when they should involve followers in decisions and the level of this involvement (Vroom & Yetton, 1973; Vroom & Jago, 1988). As in the case of all contingency models, these theorists do not promote universal leadership styles but instead suggest that the degree of follower participation should vary with the situation. A unique aspect of this model is that it views leadership as a choice among various degrees of participation.

Vroom and associates present five levels of participative decision making that range from the most autocratic (AI) to the most participative (GII) in the case of groups (see table 10.13). These five alternative decision methods are self-explanatory. The model requires that the leader carefully analyze the situation in deciding which level of participativeness to allow. They propose that there are four primary considerations that a manager should make in deciding among these levels of participation. The manager should consider the extent to which this level of participation (1) allows a high technical quality decision, (2) builds employee commitment to the decision, (3) incurs decision costs, and (4) allows employee development. The first of these considerations is the importance of the quality of the decision and the acceptance of followers. In some decisions, quality is not an important consideration (e.g., who gets to take their lunch first, who gets a specific parking space) and commitment is the primary consideration. In these situations, there is no rational basis for declaring that one solution to the problem is superior to another, and all that matters is whether the followers accept the solution. In other decisions, quality of the decision is of primary importance and commitment is not an important issue. Take as an example a group of engineers deciding on the exact specifications for a bridge where an error could result in the collapse of the bridge. The extent to which the decision is accurate is the most important consideration and the acceptance of the decision is relatively unimportant. Many of the important problems facing management require both quality and commitment. There are also decisions in which neither is important to the effectiveness of the decision. Once the situation is diagnosed, the decision rules presented in table 10.14 allow the leader to eliminate alternatives.

The end result is a "feasible set" which could include ALL the decision approaches. What does a leader do at this point? At this step, the leader calculates the overall effectiveness of any one alternative using this formula:

Overall effectiveness = Decision effectiveness - Cost + Benefits of Development

Decision effectiveness in the above equation is a function of the importance of the technical quality of the decision, the degree to which followers must commit to the solution, and the extent to which the time involved incurs a penalty.

## ALTERNATIVE GROUP DECISION-MAKING METHODS IN THE VROOM/YETTON/JAGO MODEL

<u>SYMBOL</u>	<u>DEFINITION</u>
AI	You solve the problem or make the decision yourself using the information available to you at the present time.
AII	You obtain any necessary information from subordinates, then decide on a solution to the problem yourself. You may or may not tell subordinates the purpose of your questions or give information about the problem or decision on which you are working. The input provided by them is clearly in response to your request for specific information. They do not play a role in the definition of the problem or in generating or evaluating alternative solutions.
CI	You share the problem with the relevant subordinates individually, getting their ideas and suggestions without bringing them together as a group. Then you make the decision. This decision may or may not reflect your subordinates' influence.
CII	You share the problem with your subordinates in a group meeting. In this meeting you obtain their ideas and suggestions. Then you make the decision, which may or may not reflect your subordinates' influence.
GII	You share the problem with your subordinates as a group. Together you generate and evaluate alternatives and attempt to reach agreement (consensus) on a solution. Your role is much like that of chairperson, coordinating the discussion, keeping it focused on the problem, and making sure that the critical issues are discussed. You can provide the group with information or ideas that you have, but you do not try to "press" them to adopt "your" solution, and you are willing to accept and implement any solution that has the support of the entire group.

*Source:* Vroom, V.H., & Yetton, P.W. (1973). *Leadership and Decision-making*. Pittsburgh: University of Pittsburgh Press.

Table 10.13: Levels of Participation Identified in the Vroom/Yetton/Jago Model.

## DECISION RULES FOR CHOOSING AMONG ALTERNATIVE GROUP DECISION- MAKING METHODS IN THE VROOM/YETTON/JAGO MODEL

### I. FOR GROUP PROBLEMS, TO IMPROVE DECISION QUALITY:

1. AVOID the use of AI when:
  - a. the leader lacks the necessary information.
2. AVOID the use of GII when:
  - a. subordinates do not share the organizational goals, and/or
  - b. subordinates do not have the necessary information.
3. AVOID the use of AII and CI when:
  - a. the leader lacks the necessary information, and
  - b. the problem is unstructured.
4. MOVE toward GII when:
  - a. the leader lacks the necessary information, and
  - b. subordinates share the organizational goals, and
  - c. there is conflict among subordinates over preferred solutions.

### II. FOR GROUP PROBLEMS, TO IMPROVE DECISION COMMITMENT:

1. MOVE toward GII when:
  - a. subordinates are not likely to become committed to the leader's decision.
2. MOVE toward GII when:
  - a. subordinates are not likely to become committed to the leader's decision, and
  - b. there is conflict among subordinates over preferred solutions.

### III. FOR GROUP PROBLEMS, TO REDUCE DECISION COSTS (TIME):

1. MOVE toward AI, especially if:
  - a. a severe time constraint exists, and/or
  - b. the problem is unstructured.
2. AVOID use of CII and GII if:
  - a. subordinates are geographically dispersed, or
  - b. there is conflict among subordinates over preferred solutions.

The considerations under III would be irrelevant if time were of no importance and if there were no severe time constraint on the making of the decision. They should play an increasing role in one's thinking and one's choices as the importance of time increases.

### IV. FOR GROUP PROBLEMS, TO INCREASE SUBORDINATE DEVELOPMENT:

1. MOVE toward GII when:
  - a. the problem possesses a quality requirement.
2. MOVE toward CII and GII when:
  - a. subordinates share organizational goals, and
  - b. there is conflict among subordinates over preferred solutions.
3. MOVE away from CII and GII when:
  - a. subordinates do not share organizational goals, and
  - b. there is conflict among subordinates over preferred solutions.

The considerations under IV would be irrelevant if development of subordinates is of no importance. They should play an increasing role in one's thinking and one's choices as the importance of development increases.

Source: Adapted from Vroom, V.H., & Jago, A.G. (1988). *The New Leadership: Managing Participation in Organizations*. Englewood Cliffs, NJ: Prentice-Hall.

Table 10.14: Decision Rules for Deciding Among Levels of Participation



Figure 10.10 illustrates the use of the model for group decisions where there is a high priority placed on developing employee skills. (Note that some of the situational attributes in the figure are not included in the decision tree.) For example, if the technical quality of the decision is unimportant (low branch on the QR node in the flow chart) but subordinate commitment to the decision is important (high branch on the CR node in the flowchart), then the leader would skip the leader information (LI) and problem structure (ST) nodes and ask whether subordinates are committed to the decision if the leader makes the decision herself (CP). If the answer is yes, then the leader would arrive at A1, meaning that she would want to make the decision alone without involving the group. If the answer is no, then the leader would want to use GII, meaning that she would fully involve the group in the decision.

Training employees in the use of the model involves calculating the decision rules that they actually use in choosing among levels of participation and then giving them feedback on how their rules deviate from the rules recommended in the Vroom/Yetton/Jago model. To do this, numerous hypothetical cases are presented that vary along the eight situational attributes. An employee reads each case and then chooses the alternative decision styles that he or she would use in that situation. A computer analysis shows where the employee conforms to the model and where he or she deviates from it.

The Vroom/Yetton/Jago model has an important advantage in that it sets forth specific hypotheses. Moreover, the research has generally supported these hypotheses. The most frequent approach in testing the model is to ask managers to recall some of their successful and unsuccessful decisions. Findings indicate that decision making styles used in successful decisions are more likely to fit the model's recommendations than are the decision-making styles used in unsuccessful decisions (Vroom & Jago, 1978, 1988). An experimental test of the model also provides support for the model. Five problems that varied along the attributes in the Vroom/Yetton Jago model were given to small groups to solve in a laboratory experiment (Field, 1982). The leader of each group was instructed to follow one of the five decision styles across all five problems. Generally, leaders were more effective when they used a decision process that the model identified as an effective style for a situation than when they used a style that was identified as ineffective.

The Vroom/Yetton/Jago model is more valid in describing the managerial perspective on problems than the subordinate perspective (Field & House, 1990; Heilman, Hornstein, Cage, & Herschlag, 1984). Specifically, the predictions are better supported when respondents take the perspective of the leader than when they take the perspective of subordinates. When respondents take the role of the subordinate, they tend to report that participative styles are effective regardless of the situation.



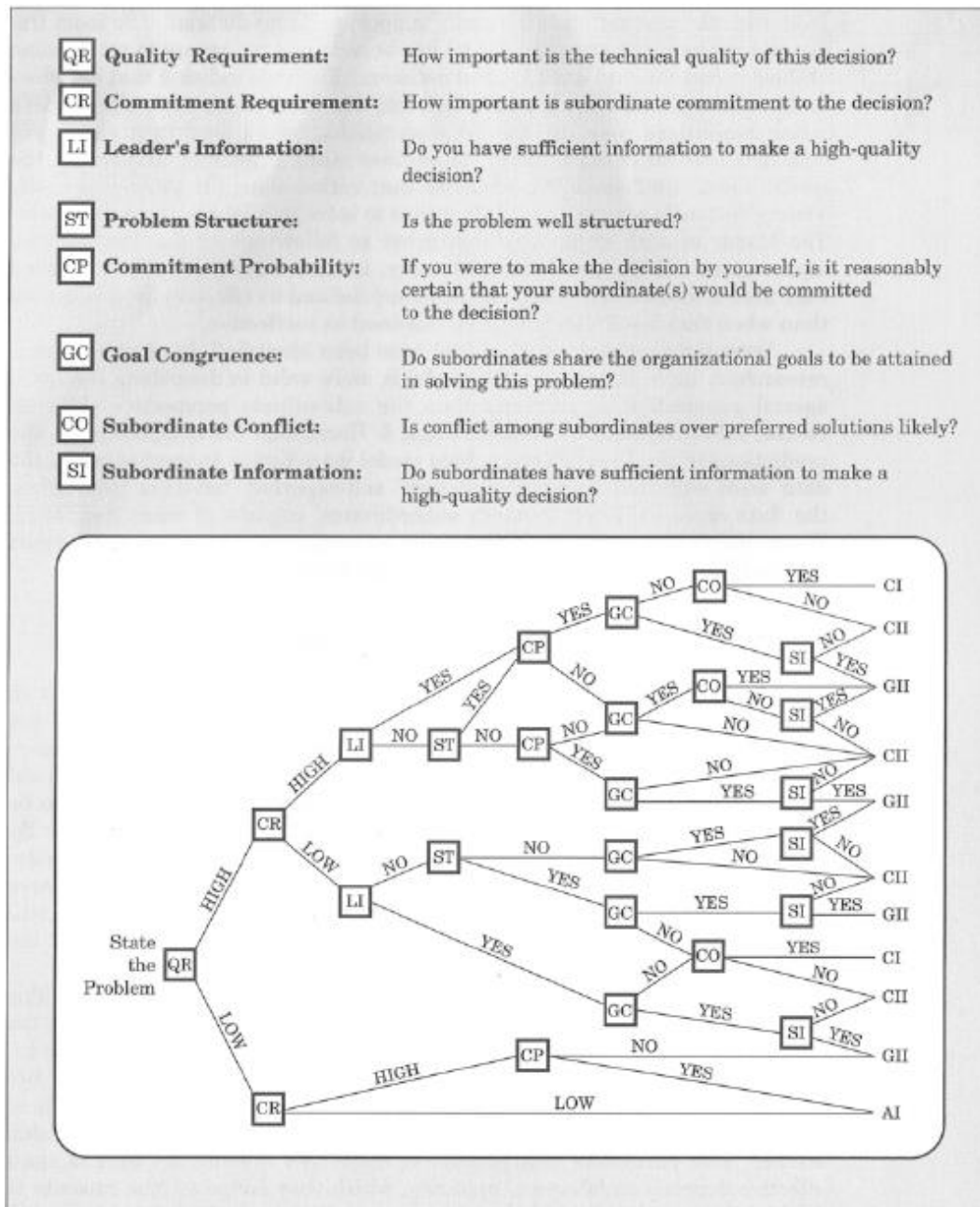


Figure 10.10: Development-Driven Decision Tree – Group Problems; Vroom/Yetton/Jago Model

Effective leaders help followers attain goals

This model of leadership proposes that the most important function of the leader is to motivate followers to invest effort in achieving organizational goals (House, 1971; House & Mitchell, 2007). Predictions are derived from these basic propositions for four dimensions of leader behavior: (1) directiveness (structuring), (2) supportiveness (consideration), (3) participativeness, and (4) achievement orientation (see figure 10.11).

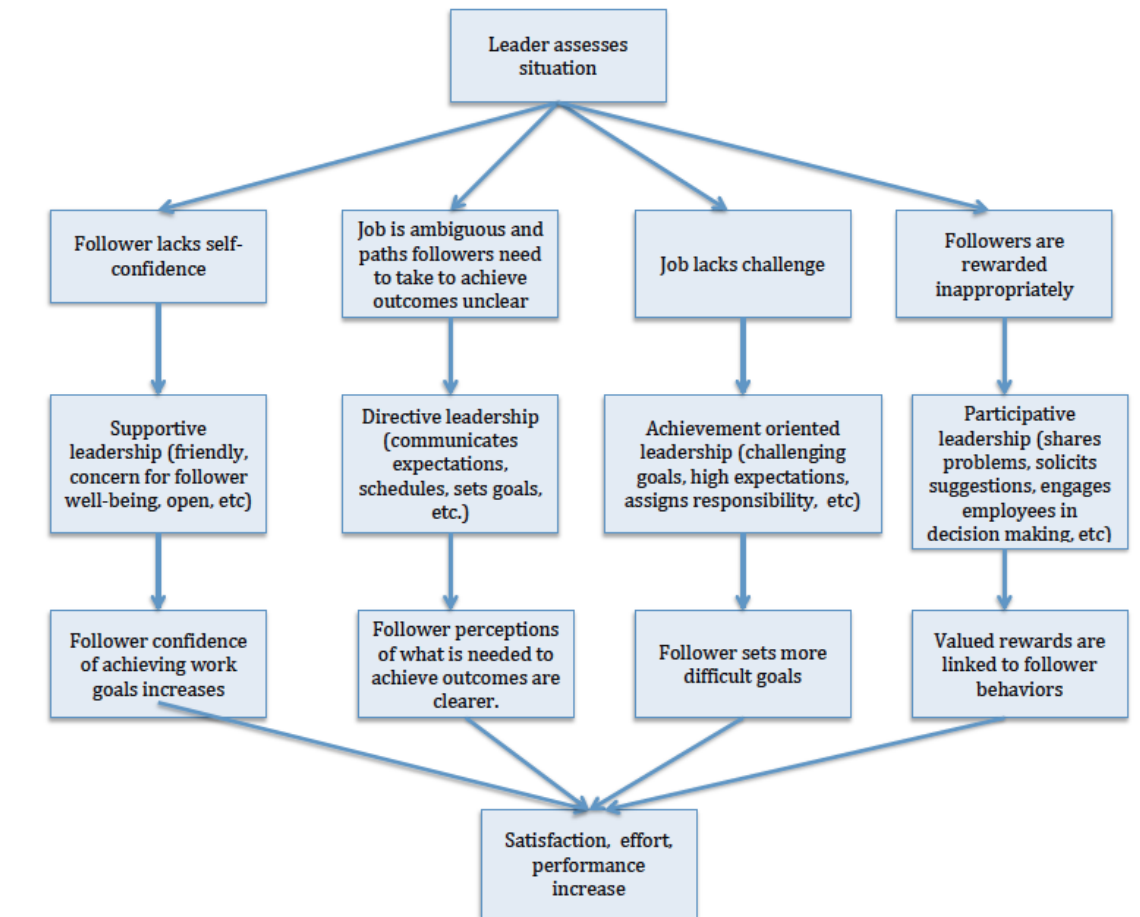


Figure 10.11: Path-goal Theory Predictions for Supportive, Directive, Achievement Oriented, and Participative Leadership.

The leader's behavior is predicted to influence followers as a consequence of the same factors stated in the VIE model of motivation: (1) the subjective probability that effort will result in effective performance, (2) the instrumentality of effective performance for valued outcomes, and (3) the positive valence of these outcomes. Basically the leader acts to enhance all three of these components, although it is usually only realistic to work on subjective probabilities and instrumentalities given that valence is rooted in traits and dispositions. By increasing expectancies that effort will lead to higher performance and that higher performance is instrumental to obtaining rewards, the leader increases the motivation of the employee to do well. According to the path-goal theory of leadership, the leader should carefully examine the situation, including the needs and expectations of the employees, and act in ways that increase the employees' expectations that effort lead to positively valued outcomes.

#### Leader directiveness.

This dimension of behavior is essentially the same as initiating structure. The effects of leader directiveness are predicted to depend largely on the degree of structure that exists in the task that a subordinate performs and on how much the subordinate needs clarity and structure. If the task

is structured or if subordinates have a low need for clarity, then directive leadership lessens employee satisfaction and performance. A directive approach is needed, however, when the task is unstructured and subordinates have a high need for structure. Research findings support these predictions, in that while more directive leaders tend to have more satisfied subordinates on unstructured tasks, they tend to have dissatisfied subordinates on more structured tasks. There is more support of these predictions for satisfaction than for performance (Schreisheim & DeNisi, 1981). There is also some indication that leader initiation of structure is more positively related to satisfaction for employees who have a personal need for clarity than for those who are more tolerant of ambiguity (Keller, 1989).

#### Leader supportiveness.

This dimension of behavior is very similar to leader consideration. Path goal theory predicts that supportive leadership is associated with higher job satisfaction when the job is dissatisfying than when it is intrinsically satisfying. A similar prediction is that the relation of supportive leadership with job satisfaction is stronger when the task is stressful than when it is nonstressful. In the case of a dissatisfying or stressful task, supportiveness complements the situation by providing rewards (praise, emotional support, etc.) where there are few intrinsic sources of satisfaction. Again, the research generally supports the predictions. In one study, police dispatchers were observed throughout an eight-hour shift. Work load was measured with the hourly rate of incoming telephone calls, radio transmissions, and communications from supervisors and peers (Kirmeyer & Lin, 1987). Under high work load, the dispatchers who received more support from the supervisor engaged in more coping behavior and reported less tension and anxiety. The degree of support made little difference, however, when the work load was low.

#### Leader participativeness.

A third prediction involves the degree to which the leader allows subordinates to get involved in making decisions. The effects of participation on job satisfaction depends on both the structure of the task and the authoritarianism of the subordinates. Authoritarianism is a personality trait that purportedly measures the extent to which people submit to authority figures. High-authoritarian subordinates prefer a high degree of control in their environment, whereas low-authoritarian subordinates value their independence. According to House, low-authoritarian subordinates are more satisfied with a job when the supervisor allows them to participate in decisions regarding the job than when the supervisor is nonparticipative. Moreover, the low-authoritarian subordinate values participation for its own sake, not for its effect on goal achievement. On the other hand, the job satisfaction of a high-authoritarian subordinate is enhanced by participation only in unstructured tasks. Supposedly participation enhances satisfaction among these subordinates by enhancing their expectations that their efforts will lead to task success. The author of one study reports some support for these predictions based on research with employees in a manufacturing plant (Schuler, 1976). However, there is too little research to conclude support for path-goal theory predictions for participation.

### Achievement oriented leadership.

According to House and Mitchell (2007), achievement-oriented leaders set challenging goals, expect subordinates to perform at their highest level, and continuously seek improvement in performance. They also show a high degree of confidence that the subordinates will assume responsibility, put forth effort, and accomplish challenging goals. The path-goal theory prediction is that achievement-oriented leadership causes subordinates to have more confidence in their own ability and that this will cause them to increase their efforts to succeed. As in the case of participation, there is too little research to justify the conclusion that there is strong support for predictions of path-goal theory for achievement oriented leadership.

A general principle underlying path-goal theory is that the leader should diagnose the situation, decide what's lacking, and then provide leadership that corrects the deficiency. So if followers lack confidence, then the leader is supportive to bolster their confidence. If followers are faced with ambiguous tasks, the leader is directive and initiates structure to clarify the task. If the job is boring and lacks challenge, the leader takes an achievement approach to increase challenge. If the rewards in the situation are not really relevant to the needs and values of the group, using a participative approach clarifies needs and provides rewards for exerting effort on the task.

Effective leaders consider the maturity of followers

A contingency that many practicing managers would endorse as an important factor, but that is largely ignored in the research, is the maturity of followers. A common view is that immature workers need more directive leadership. For instance, in a New York Times article a management consultant claims that management should treat workers in their twenties and thirties in the same way that a teenager is treated by a parent. By using what he calls a "re-parenting strategy," he claims that the productivity of young employees is raised to acceptable levels within two or three years. Whether younger workers are generally immature and deserving of this type of treatment is doubtful, but the idea of adjusting leadership style to the maturity of the followers is consistent with Hersey and Blanchard's (1982) situational theory. Hersey and Blanchard follow the Ohio State Leadership distinctions and describe leadership in terms of task orientation and relationship orientation. The particular combination of these two dimensions that is most effective depends on followers' maturity, which they define as "the capacity to set high but attainable goals (achievement-motivation), willingness and ability to take responsibility, and education and or experience of an individual or a group" (p.161; see table 10.15 and figure 10.12).

Hersey and Blanchard recommend that less task orientation and more relationship orientation are needed as the maturity of followers increases, up to the point that the group reaches a moderate level of maturity. Past this point, leaders should de-emphasize both tasks and relationships in their leadership. A highly mature group is most effective with a leader who has a low-relationship, low-task orientation. A moderately mature group is more effective with a high-relationship/low-task orientation leader. A group with a somewhat less than moderate level of maturity needs a high-task high-relationship orientation leader. Finally, a highly immature group is most effective with a leader who is high in task orientation and low in relationship orientation.

The rationale of this last prediction is that a highly immature group needs a taskmaster and a relationship orientation sends them the wrong signals.

Employee Ability			
Employee Motivation	Employee has Low Ability		Employee has High Ability
	Employee is Motivated	Leader should use a High Task/Low Relationship Approach (directive)	Leader should use a Low Task/High Relationship Approach (supportive)
		Leader should use a Low Task/High Relationship Approach (Consultative)	Leader should use a High Task/High Relationship Approach (Delegating)

Table 10.15: Hersey and Blanchard Situational Theory Predictions for Leadership Approach Most Effective Contingent on Subordinate Maturity

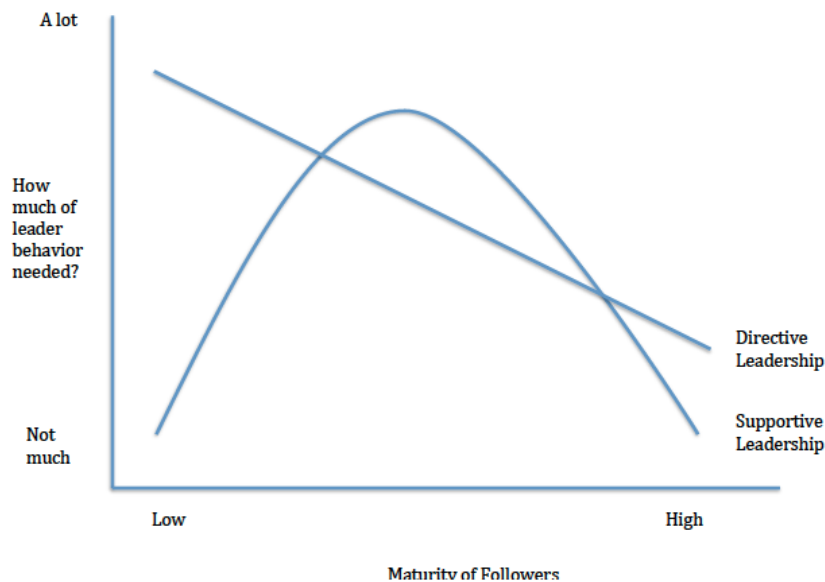


Figure 10.12: Hypothesized Effectiveness of Directive and Supportive Leadership Styles as a Function of Follower Maturity

Criticisms of Hersey and Blanchard's model focus on several conceptual weaknesses, most notably the ambiguity of the maturity dimension (Graeff, 1983). There is also little evidence to support a nonlinear relationship between follower effectiveness and either leader task orientation or leader relationship orientation (Graeff, 1983). In one of the few empirical tests of the Hersey and Blanchard model, high school teachers were surveyed concerning the supervision they received from their principals (Vecchio, 1987). In support of the theory, teachers tended to have higher performance and satisfaction if their principal's leadership style fit the recommendations

of the Hersey and Blanchard model. The strongest support was for the low-maturity condition. As predicted, principals who were low in consideration and high in structuring were most effective when their teachers were low in maturity. Mixed support was found for the other predictions, however.

Despite the criticisms of the model and the mixed support, the Hersey and Blanchard model point to a very relevant contingency that probably seems obvious to most practicing managers... the ability and motivation of the followers to do the job. It seems very likely that different leadership approaches are needed for followers who are low on motivation and ability than is provided for followers high on these dimensions. One caveat is warranted: It is important that the diagnosis of immaturity does not become a self-fulfilling prophecy.

Points to ponder:

1. Identify areas of conflict between the various contingency approaches to leadership. Are these fundamental differences between the theories or can we accommodate the differences by taking into account additional factors?
2. What is your LPC score? Do you think it reflects something important about the way you might lead? Why or why not? Why did you evaluate your least preferred coworker the way you did? What do you think your evaluation says about how you might act in a leadership role? Do you think this scale provides insight into leadership or something else?
3. There are numerous criticisms of Fiedler's contingency theory on both conceptual and methodological grounds. Despite these criticisms, what grains of wisdom do you think one can draw from this theory that would benefit the person in a leadership role?
4. House's path-goal theory of leadership builds on VIE theory of motivation. Go back to VIE theory and show the connections between what path-goal theory states for leadership and what the VIE theory of motivation stated for the individual employee.
5. The Blanchard and Hersey situational theory proposes that fundamentally different styles of leadership are needed for mature and immature followers. Some have used this model to propose that young employees in their 20s and late teens should be closely supervised and managed in an autocratic style and not allowed to participate in decision making. Do you agree?
6. What would you consider the most important of the decision rules in the Vroom/Yetton/Jago decision model? Why do you consider them more important than the other rules? Which of the situational factors would influence you the most if you were in a leadership role and trying to decide on the extent to which allow employees to participate?
7. The Vroom/Yetton/Jago model brings the leader to a decision on how much to allow followers to participate in decision making. The leader must then implement that choice with followers. What other factors do you think might affect how successful a leader is in the attempt to use the approach dictated by the decision model? For instance, if full participation was advocated, then

what would determine whether a leader is successful in actually involving employees in a participative session?

8. In many of the situations outlined in the Vroom/Yetton/Jago model, there is a feasible set of behaviors the leader can use that could range all the way from autocratic to full participation. What are the additional factors that the authors suggest considering in choosing which of the alternatives to use in the feasible set?

9. All the contingency models state that leaders must analyze the situation, followers, and themselves and then pick an approach that will likely vary from one occasion to another. What are the forces at work in the situation and in the leader that would prevent or hinder him or her from using a contingency approach? Do these factors mean that the contingency approaches are totally invalid or do they simply point to additional factors that the leader needs to consider?

## Conclusions

This chapter examines the various theories of leadership set forth by psychologists and other behavioral scientists. The review of the trait, behavioral, situational, and cognitive approaches shows that none of these provides a complete answer. However, each provides insights into a different aspect of the leadership. Some of the lessons of previous research and theory include these: (1) the leader makes the most of the situation, (2) some traits make it easier to lead, (3) some behaviors are more related to effective leadership than others, (4) leaders make sure others perceive them as leaders, (5) leaders are aware of how their own expectations and assumptions affect how they lead, (6) leaders diagnose what is needed and adapt their leadership to the situation, and (7) leaders intrinsically motivate their followers.

The most extreme trait approach would state that leaders are born, not made. In other words, leaders are people whose success is the consequence of their innate personalities, cognitive abilities, and physical traits. Research has found that some traits are indeed related to perceived leadership and success in leadership roles, although such traits explain only a small part of the variance. Findings that people who succeed in leadership roles tend to be extroverted, agreeable, conscientious, open to experience, emotionally stable, intelligent, and relatively tall. There is also some evidence that they have moderate to high on needs for power and need for achievement and relatively low on need for approval. The strongest and most consistent relations are for extraversion and intelligence. Despite these findings, the correlations are relatively small. Clearly, traits are not enough to predict leader effectiveness.

The hope of the behavioral approach is that the identification of what a successful leader does, will enable organizations to instruct managers in how to become effective leaders. Behavioral research has shown that leaders are distinguishable along two general dimensions: initiation of structure and consideration. Although these and other behavioral measures relate to important leadership effectiveness criteria, the results are generally weak and indicate a need to investigate more specific leader behaviors.

Situations also play an important role in leadership. External factors shape how leaders behave and their effectiveness and in many cases the leaders have no control over these factors. Still,

leadership is more than being in the right situation at the right time. Successful leadership requires knowing when to go with situational forces rather than attempting to take charge. Leaders must know what to do once they are in a situation, even if this means doing nothing.

Finally, one must also take into account the cognitive elements involved in leadership. Even if an individual possesses the right traits, exhibits the appropriate behaviors, and is fortunate enough to have a favorable situation, attempts at leadership may fail unless others perceive that the individual is a leader. Leaders' perceptions of their followers can influence how they behave toward subordinates. For instance, leaders are more likely to allow followers who are seen as competent and motivated to participate in important decisions, whereas they are more likely to closely supervise and direct those they label as incompetent or unmotivated. The perceptions that leaders have of followers and the perceptions that followers have of leaders can lead to self-fulfilling prophecies. One implication of the cognitive approach is that leaders need to manage the impressions that others have of them and monitor the effects that their beliefs can have on the way they treat followers. A more disturbing implication is that leaders can gain influence and power through projecting images that have little substance.

The first attempts to synthesize these various determinants of leadership have come from the contingency theorists. The basic prediction is that different situations require different types of leadership. The implication for practice is that the leader should carefully diagnose the situation and then lead in a manner that fits the situational requirements. This requires flexibility as the leader shifts his or her behavior to meet the demands of the situation.

Research has reduced leadership to variables that management can engineer to some extent through selection, training, and design of the situation. Yet in the attempt to analyze leadership one is left with the uneasy feeling that the soul of the leadership process has been lost. While the traditional view of leadership may expect too much of the leader, contemporary theories seem to expect too little. In stressing the accommodation of the leader to subordinates and the situation, models of leadership have largely ignored the possibility that leaders also can transform the values, motives, and even the self-concepts of followers. It is too soon to tell whether a useful body of literature will eventually accumulate from the work on transformational, inspirational, and charismatic leadership, but these approaches promise to put some of the romance and excitement back into the study of leadership. Changes confronting organizations will require that we reconsider many of our traditional conceptions of leadership. In the traditional, bureaucratic organization, a strict hierarchy exists in which managers at each level have the authority to tell those below what to do and how to do it. Employees are assigned clearly defined duties and report to a boss who makes sure that these duties are adequately performed. In a stable, orderly world this bureaucratic structure made sense, but rapid technological and societal changes require greater innovation and flexibility than the traditional organization can provide. These trends suggest that managers of tomorrow cannot rely on the formal authority that comes with their positions but will need to shift their leadership to fit the situation. Participative and charismatic skills will become especially important in the organization of the future. To successfully deal with the changes that confront today's institutions, leadership is needed that can provide solutions to problems and build the commitment to implement those solutions. The growing body of research findings on leadership in I/O psychology promises to provide a strong empirical basis for these efforts.





## CHAPTER 11: ANALYZING WORK



## Introduction

Understanding why people behave as they do in the workplace and improving their job effectiveness require knowledge of what they do. The systematic process of collecting and interpreting information on work-related activities is job analysis (also called work analysis). Contrary to the common perception, job analysis is fun. The analyst frequently acts as a Sherlock Holmes, going beyond titles and other surface features to ferret out the essential nature of an employee's activities. But regardless of whether job analysis is the reader's idea of fun, it is an activity that is crucial to understanding most of the topics in this text. The chapter on history discusses how the uncertainty present when making decisions is an important contingency in deciding whether to impose hierarchical, vertical modes of management or more open, horizontal modes of management. The chapter on work motivation discusses how the work itself is an important source of satisfaction, motivation, and stress. Task variables again emerge in the discussion of social processes, social structure, and teams. The cooperative nature of work is shown to determine the relative effectiveness of rewarding the group for its collective efforts versus rewarding individuals for their individual efforts. Once again the task is presented as a moderator in the leadership chapter when participative leadership is described as more effective on unstructured than structured tasks. Job analysis is the first step in the design of human resource management programs such as employee selection, training, and performance appraisal. In short, the pivotal role of the job and the task in both the I and the O of I/O psychology makes job analysis one of the most important topics discussed in this text.

### What is a job?

Something so familiar would seem to need no definition, but several terms are frequently confused that need clarification. The terms element, task, position, job, occupation, job family, and career each refer to a different aspect of work. Assume that you are given the responsibility of analyzing the job of a worker in a fast food restaurant.



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Also assume that you observe the worker performing the following activities:

*\*Requests customer order and depresses keys of multi-counting machine to simultaneously*

*record order and compute bill.*

*\*Selects requested food items from serving or storage areas and assembles items on serving tray or in takeout bag.*

*\*Notifies kitchen personnel of shortages or special orders.*

*\*Prepares cold drinks, using drink-dispensing machine, or frozen milk drinks or desserts, using milkshake or frozen custard machine.*

*\*Prepares hot beverages using automatic water heater or coffeemaker.*

*\*Serves beverages and food to customers at their tables.*

*\*Presses lids onto beverages and places beverages on serving tray or in takeout container.*

*\*Receives payment.*

*\*Cooks and apportions french fries and performs other minor duties to prepare food, serve customers, or maintain an orderly eating or serving area.*

The smallest components of these work activities are called job elements. "Requests customer order" and "Depresses key of multi-counting machines" are two elements in the first descriptive statement. One or more elements go together to form a task, which is defined as *a work activity performed to accomplish a specific objective or goal*. Work is essentially the performance of tasks. Teachers teach, physicians provide medical care, window washers clean windows, and so it goes through the thousands of jobs that constitute the world of work. Not surprisingly, a large amount of effort is devoted to preparing task statements in job analysis. A task statement usually begins with an action verb and the object of that verb (e.g., presses lids, receives payment, serves cold drinks) and frequently specifies what the person uses in the way of tools or machines (e.g., use drink-dispensing machine, serve tray, use automatic water heater or coffeemaker) as well as the objective of the act (to maintain orderly eating area, to compute bill).

The tasks performed by an individual in an organization define that person's position. There are as many positions as there are employees in an organization. Moreover, the tasks performed by any one individual occupying a position are unique to some extent. This is not as likely with highly routine positions (e.g., a fast food worker) as with less routine positions (e.g., managerial and professional work). A middle-level manager in a larger organization, for instance, performs some tasks that differ from tasks performed by other managers in the same company, despite the fact that they have the same title.

The job is the primary focus of this chapter. The U.S. Department of Labor Handbook of Job Analysis defines a job as "a group of positions that are identical with respect to their major or significant tasks and sufficiently alike to justify their being covered by a single analysis. There may be one or many persons employed in the same job" (p. 3). Deciding whether a collection of positions is classified as the same or different jobs ultimately requires human judgment. In some cases, this involves no more than eyeballing the tasks contained in the various positions. In other cases, more rigorous analyses are required. For example, psychologists often conduct complex statistical analyses on employees' descriptions of their tasks to determine if employees occupy the same or different positions. If the analyses show that positions are very similar in the tasks performed, then this group of positions is considered a job (see figure 11.1). A job is an abstract concept associated with a cluster of behaviors. In this sense it is a psychological construct (see Binning & Barrett, 1989, for an interesting discussion of this). A job is also part of the formal design of the organization and consists of a cluster of positions that are intended to go together.

If jobs always correspond to the way the organization design them, there is little need for job analysis. That is not the case, and there are almost always some deviations in the performance of tasks from what is intended in the job design. Consequently, a careful analysis of positions is needed to ensure that the positions included under the same job title really deserve the same title.

An occupation is a group of jobs in several different organizations that are similar in the tasks performed. For example, there are many jobs in many different schools that involve different types of teaching (math, science, literature, biology), but all of these jobs belong to the teaching occupation. At the highest level of analysis is the job family, which is a group of similar occupations.

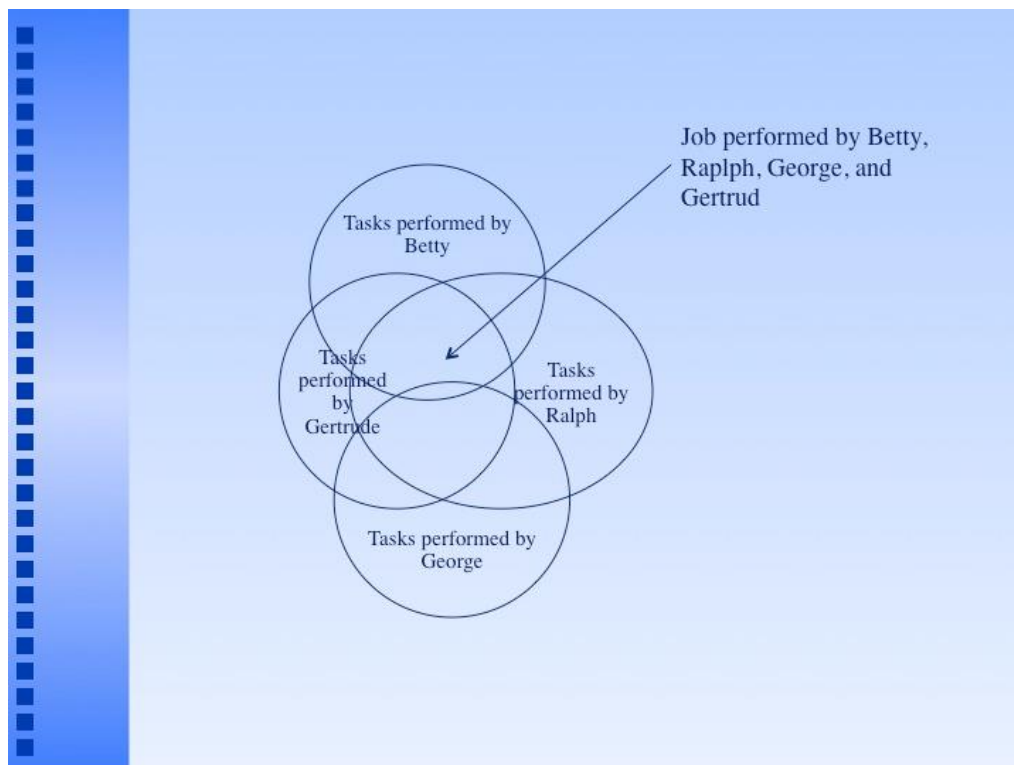
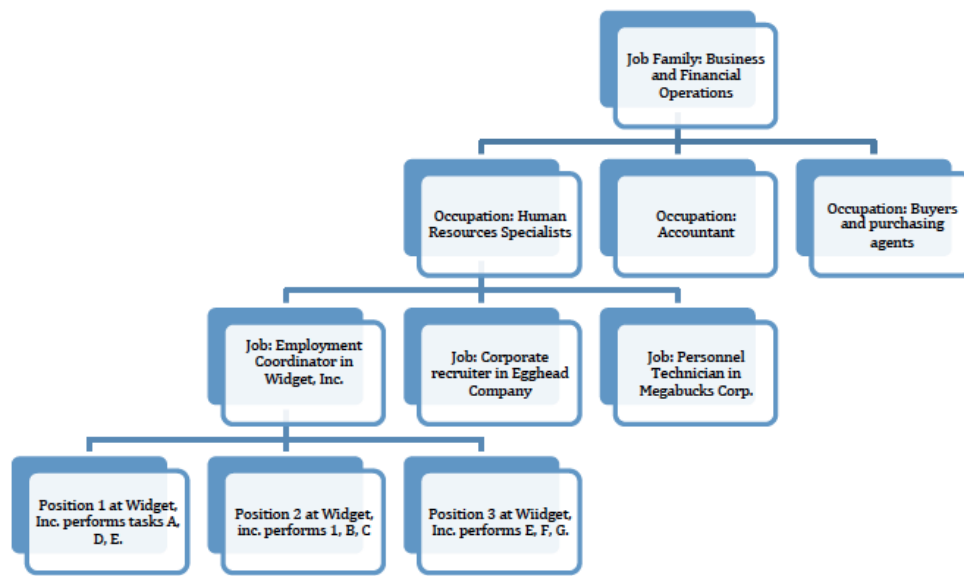


Figure 11.1: Venn Diagrams Illustrating the Identification of a Job from Tasks

The analysis of work yields a hierarchy of work activities. Pearlman (1980) illustrates this with the job of bookkeeper. The three bookkeeper positions shown in figure 11.2 undoubtedly involve different tasks to some extent, but there is enough commonality to place them in the same job. In turn, similarity in bookkeeper jobs across organizations defines the occupation of bookkeeper, and the similarity in the activities of accounting clerk, teller, and budget clerk define a job family of computing and account-recording clerks.



Tasks performed in Job employment coordinator job:

Task A: Interpret and explain human resources policies, procedures, laws, standards, or regulations.

Task B: Schedule or conduct new employee orientations.

Task C: Maintain and update human resources documents, such as organizational charts, employee handbooks or directories, or performance evaluation forms.

Task D: Confer with management to develop or implement personnel policies or procedures.

Task E: Interview job applicants to obtain information on work history, training, education, or job skills.

Task F: Address employee relations issues, such as harassment allegations, work complaints, or other employee concerns.

Task G: Hire employees and process hiring-related paperwork.

Source: <http://www.onetonline.org>

Figure 11.2: Illustration of Distinctions among Job Family, Occupation, Job and Position

A career is a sequence of positions held by an individual employee over time (see figure 11.3). One employee begins as an accountant in a firm, moves up to manager of a department, is promoted to vice-president, and eventually becomes president of the firm. In this case the employee's career progresses in an upward direction, but careers also move in a downward direction, as in the case of an employee who starts out as a blue-collar worker, is promoted to foreman, goes back to nonsupervisory duties, and eventually is dismissed when the plant is relocated. Increasingly, careers are nonlinear and do not follow a straight, unbroken path. An employee begins in a nonsupervisory position, progresses to a managerial position, drops out for several years to raise a family, returns to resume former responsibilities, and then leaves to work in an entirely different field. Charting the various ways that careers unfold is an intriguing area of research that is likely to receive an increasing amount of attention from I/O psychologists.



Figure 11.3: Illustration of a Career

This chapter examines the methods that are used in describing and analyzing tasks, jobs, occupations, and careers. The first topic is the content of the work that is examined in a job analysis. The chapter then addresses uses of job analysis, who serves as a source of information on work activities, and the methods used in collecting the data. A recurring theme is that there is no single best approach, and much depends on the intended uses of the job analysis.

What does a job analysis measure?

Job analysis involves dividing the work performed into fundamental elements. But what are these fundamental elements? In describing the content of job analyses one can distinguish between analyses that focus on the behavior or characteristics of the occupant of a position and those that describe the position in terms of the physical and interpersonal environment of the work. Drawing from the work of Fleishman and Quaintance (1984), one can distinguish among three basic approaches to job analysis.

The behavior approach focuses on the activities in the position. Within this category of approaches, Fleishman and Quaintance (1984) distinguishes between behavior description and behavior requirement approaches. Both use what McCormick (1976) call work (or job) oriented language: "the description of the work activities performed, expressed in job' terms, usually indicating what is accomplished, such as galvanizing, weaving, cleaning, etc.; sometimes such activity descriptions also indicate how, why, and when a worker performs an activity" (p. 652). With the behavior description approach, the job analyst generates a list of behaviors describing the most frequent or typical actions of the employee. This is the approach used to generate the typical job description. When data are needed on the task activities necessary to perform the job,

a behavior requirement approach to job analysis is preferred. With a behavior requirement approach the analysis of the fast food worker job is less focused on whether a fast food worker "Makes and serves hot beverages" and is more concerned with the efficient and correct manner of performing these activities. Determining the best ways of performing the work might require time and motion analysis to identify the best ways of performing the work. When a position involves a sequence of tasks, a behavior requirements approach includes a chronological and a functional listing of these tasks in the order in which they are performed. Consider the sequence of tasks performed by a baker in baking bread: mixes dough, forms dough into loaf places loaf in oven, removes loaf. In contrast, many jobs do not involve particular sequences of activities. A teacher prepares lectures, grades papers, holds student parent conferences, supervises field trips, and monitors recess, but in no particular order.

A second approach is the KSAO (knowledge, skills, abilities, and other characteristics) job analysis. Here the focus is on the attributes of the worker rather than the activities performed in the position. KSAOs are the attributes required to perform the job and could include physical and cognitive abilities, values, temperament, personality, work styles, interests, and a variety of other personal characteristics of the worker needed to perform the job. These KSAOs vary from stable attributes that are unlikely to change (e.g., cognitive ability and personality traits) to attributes that are trainable and that change over time (e.g., skills and knowledge). The KSAO approach uses what McCormick (1976) describes as worker (or person) oriented language. Work oriented language consists of specific task statements that are associated with the position and provide little basis for comparing different positions. In contrast, worker oriented language consists of descriptions of the position on the various human attributes required in the job and do provide a basis for comparisons of different positions. For instance, a professor "prepares lectures" and an auto mechanic "changes oil," but these task statements do not allow a quantitative comparison of the two positions. A professor's position requires a relatively high degree of verbal ability and the auto mechanic position requires a high degree of spatial ability. The use of this worker oriented language in describing the work allows a direct comparison of the two positions. Worker oriented language allows a quantitative comparison of positions even when they differ markedly in their work activities. An important use of the KSAO approach to job analysis is generation of job specifications. This is a list of the various requirements of the job including the KSAOs, level of education, special certificates or licenses, and experience.

In contrast to the behavior and KSAO approaches, the contextual approach to job analysis treats the job as a set of stimuli external to the worker. Rather than describing the position in terms of the behavior of the occupant of the position or the attributes of that individual, the position is described in terms of factors external to the worker. These factors are essentially the stimuli that the occupant of the position responds to and could include workload, complexity of the work, the number of tasks performed, the working conditions (heat, lighting, noise), and the kinds of hardware involved in the job (e.g., rotary knobs, joy sticks, indicator lights, digital readouts). A contextual approach could also focus on the interpersonal context of the work such as whether incumbents must negotiate with others, serve as a team member, engage in conflict, or make difficult decisions. An example of the contextual approach is Hackman and Oldham's (1975) Job Diagnosis Survey (JDS). They designed the JDS to measure the motivating potential of the tasks in a job and distinguished among jobs on the variety, significance and identity (i.e., the extent to which a meaningful set of activities was performed) and whether the job provided



feedback and autonomy. The reader is referred to the chapter on motivation where the JDS is described in detail.

A job analyst could use language very specific to a position or more abstract language that describes the work on abstract behavioral, KSAO, and contextual dimensions. Each of the three of the approaches we have discussed (the behavioral, the KSAO, and the task characteristics) could use language falling at some point along this continuum. The degree of specificity needed depends on how the analyst will use the job analysis information. If the analyst wants to train a worker in the specific tasks needed to perform the work or wants to design the work so that it is done in the most efficient way, then position-specific information is needed. On the other hand, more abstract dimensional information is needed when deciding whether positions are similar enough to belong to the same job or determining a fair compensation for the occupants of the job. As an example, take a look at the descriptions of the occupation of surgeon found at the following link:

<http://www.onetonline.org/link/summary/29-1067.00>

This description of surgeon contains all three of the types of job analysis content and language that ranges from very occupation specific to the more general and abstract. An example of very specific, work oriented language are task statements such as “follow established surgical techniques during operation, diagnose bodily disorders and orthopedic conditions, and provide treatments, such as medicines and surgeries, in clinics, hospital wards, and operating rooms, and direct and coordinate activities of nurses, assistants, specialists, residents, and other medical staff.” Although not found in the O\*NET information, one could also describe the KSAOs in terms very specific to the work of a surgeon such as the ability to cut into skin of a living person to perform surgery or skill in preparing a case history report on a surgical patient. More abstract descriptions of the surgeon include ratings on where the position is located on general KSAO dimensions such as “complex problem solving ability,” “critical thinking,” “judgment and decision making”, “communicating effectively in writing,” “coordination of one’s activities with others,” human abilities and other personal characteristics needed to perform the work (e.g., finger dexterity, high intelligence). The occupation specific language in the above example applies only to the occupation of the surgeon, whereas the more abstract KSAOs and general work dimensions allow comparisons of the occupation of surgeon to all other occupations.

Points to ponder:

1. Observe work being performed in an organization (e.g., take a look at secretaries at work or postal workers). Identify the elements, tasks, positions, jobs, and occupations associated with this work.
2. Describe the four approaches to describing work, providing examples from work that you have observed. How do they differ in the language used in describing work?
3. Talk to someone you know who holds a job or consider your own work activities. Do you or the person have a career? How would you describe this career in terms of past, present, and future activities?

## Why Do Job Analyses?

Figure 11.4 depicts the process of job analysis as beginning with the gathering of information on the job content and context and then proceeding to the generation of job descriptions and the specification of worker requirements (worker specifications). The job analysis is then used in training, compensation, performance appraisal, staffing, HR planning, and the design of work. Do not underestimate the importance of job analysis in an organization. When human resource management is done right, the first step is collecting information on the elements and tasks of the work performed. However, a variety of approaches are used in job analysis, and the specific approach depends on the use that is made of the information.

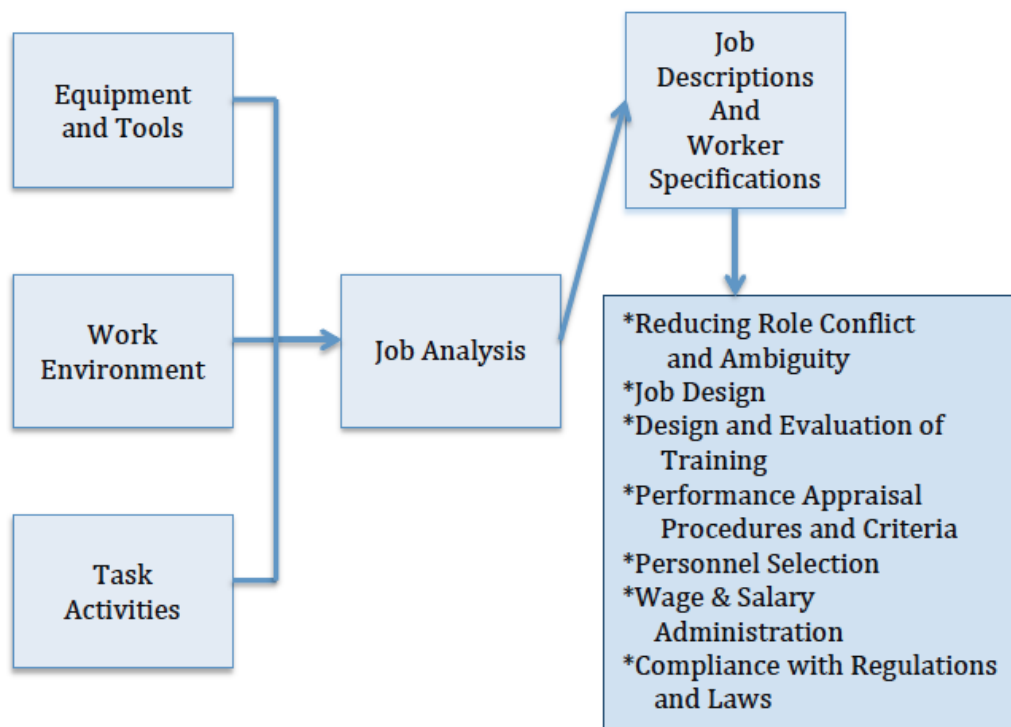


Figure 11.4: The Job Analysis Process

### Reducing role conflict and ambiguity

There is often a discrepancy between what incumbents describe as their position and what the organization and other persons say they should do. An immediate benefit of job analysis is that it can clarify and reduce these misunderstandings. A well-written and up-to-date description of the job can help immensely to reduce conflict and ambiguity, especially if those in the jobs are involved in writing the descriptions.

## Design and evaluation of training

In preparing a training program, the content of the training should reflect the content of the job. A job analysis can help in this regard by identifying the major content areas and material that the course should cover (Faley & Sundstrom, 1985; Glickman & Vallance, 1958). For example, a behavior description technique such as the Position Analysis Questionnaire is useful in identifying the most important dimensions of the job that training emphasizes. If a job involves mainly decision-making and communication and relatively little in the way of public/customer contact, then the training should emphasize the former more than the latter. Finding that several jobs are high on the same dimensions would suggest that the training programs used for these different jobs include the same core curriculum.

## Performance appraisal and criterion development

The performance criteria that are used as the basis for evaluating the job performance of individuals are best derived from important dimensions of the job. If an individual's job involves primarily working with people but very little handling of data and information, then the measures of performance should focus primarily on how well the employee deals with people. The job analysis techniques discussed in this chapter are all useful in identifying important dimensions of the job. The Critical Incidents Technique is among the most common methods because it specifically focuses on the crucial behaviors in the job.

## Job design

If an analysis reveals that a job lacks the characteristics required for worker motivation and satisfaction, then adding variety, challenge, and other motivating task characteristics through job enrichment is needed to increase its motivational potential. If the job analysis reveals that there are job characteristics causing inefficiencies, then work simplification is needed using time and motion studies and other scientific management methods. Job analysis also is useful in identifying sources of discomfort associated with muscular, physiological, stress, and environmental demands, and problems with the human-machine interface. Two job analysis techniques that are particularly useful for this purpose are the Multimethod Job Design Questionnaire (MJDQ; Campion & Thayer, 1985; Campion, 1988) and the Job Description Scale (JDS; Hackman & Oldham, 1975). The JDS is used to assess job components that are crucial determinants of employee satisfaction and motivation and constitute potential targets for job enrichment. In addition to measuring the same motivational components in the job as the JDS, the MJDQ taps aspects of the job that are potential targets for simplification.

## Personnel selection

In deciding what to look for in new hires, the first step is to carefully analyze the requirements of the job. Selection procedures that are based on careful analyses of the requirements of the job are legally more justifiable, are perceived as fairer by applicants, and are more likely to provide a better basis for predicting future success. For instance, interviews based on formal job analysis do a much better job in the selection of employees than interviews not based on formal job analyses (Wiesner & Cronshaw, 1988). Some job analysis procedures are highly relevant to

personnel selection in that they provide direct assessments of the requirements of the job (e.g., Fleishman's Ability Requirement Scales). Others are indirect and provide job information that the analyst can then use to generate the requirements (e.g., the Position Analysis Questionnaire).

Once the knowledge, skills, abilities, and orientations (KSAO's) required in a job are determined through either direct or indirect means, selection procedures are designed to measure these KSAOs and screen applicants. If a job analysis shows that successful performance of the job requires a high degree of general intelligence, physical stamina, and assertiveness, then this tells us that tests of these characteristics are needed to screen and select among applicants. The requirements (specifications) generated in a job analysis are essentially hypotheses that are tested through research. If a job seems to require a high level of reading ability, then research is conducted to assess whether employees higher on reading ability actually perform better. It should be noted that some psychologists would disagree that every potential selection procedure needs a job analysis before it is used. This controversy is covered in more detail in the discussion of the concept of validity generalization in the chapter on principles of selection.

Job analysis is particularly important when the selection procedures are designed to sample the content of the specific job (Levine, Ash & Bennett, 1980). If clerical applicants are expected to have specific knowledge, skills, and abilities at the time they are hired, a test is needed to assess these factors. The items in the test should reflect the important activities of the job that are identified through job analyses. In these cases, job analysis is fundamental to the content validity of the test used to assess applicants.

### Wage and salary administration

Another controversial application of job analysis is in deciding how much money to pay people in various jobs in the organization. It is often difficult to both successfully compete with other firms in attracting and retaining qualified personnel and at the same time maintain internal equity in the wage system. Wages depend to a large extent on the supply and demand factors, but paying purely on the basis of the external labor market is likely to provoke widespread feelings of inequity among employees in the organization. Job evaluation provides an assessment of the relative worth of jobs to the organization and is used to help maintain some balance between internal and external equity in the wage structure.

### Compliance with regulations and laws

In the United States and many other countries, a variety of regulations and laws require that employers conduct job analyses. Civil rights legislation such as the Americans with Disabilities Act and the Civil Rights act of 1964 is perhaps the most important stimulus for job analysis in the United States. Regulatory guidelines and the interpretation of the laws in court cases have identified job analysis as a very important part of the strategy that organizations must use to comply with these laws. If there is discrimination against minorities, older employees, the disabled, women, and other groups protected by these laws, then the employer needs to justify the job-relatedness of the personnel practices responsible for the discrimination. Job relatedness is not without ambiguity, but the courts generally look with favor on employers who can back up their decisions with formal job analyses (Kleiman & Faley, 1985; Cascio & Bernardin, 1981).

The clearest example of the importance of job analysis in complying with the law is the Americans with Disabilities Act. This act specifically states that "No covered entity shall discriminate against a qualified individual with a disability because of the disability of such individual in regard to job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other terms, conditions, and privileges of employment." A qualified individual with a disability is defined as "an individual with a disability who, with or without reasonable accommodation, can perform the essential functions of the employment position." If employers use a hiring procedure that eliminates disabled applicants from consideration, they must show that the rejected applicant is unable to perform the essential functions of the position. Although it is not entirely clear how to define essential functions, employers have scrambled to redo their job descriptions to clarify job requirements. This act has increased the importance of job analysis as a human resource activity in organizations and led to more research by I/O psychologists on how to conduct these analyses.

Points to ponder:

1. Why is work analysis often called the cornerstone of all of I/O psychology? Describe its relevance to the O topics we have discussed in the earlier chapters: motivation, work related attitudes, social processes and structure, leadership, teams, and stress.
2. Describe the various applications of work analysis in organizations.

How are Job Analyses Evaluated?

In evaluating how well a job analysis performs the first question to ask is whether it fulfills the purposes for which it was designed. If the purpose is to design a training program but the job analysis does not allow identification of the KSAOs that are the targets of the training, the analysis has failed in this regard. Likewise, if the purpose is to provide clarification of what the employee is to do and thereby reduce role ambiguity, but the job analysis does not provide specific information on the tasks that are performed, the job analysis has fallen short. In most organizations, more than one type of job analysis is needed, and each is evaluated against what it contributes to some human resource management function.

All job analyses, regardless of purpose, need to produce accurate information. Morgeson and Campion (1997) propose that there are six primary indicators of accuracy in job analyses:

1. Interrater reliability: How consistent are the results of job analyses across different job analyst? If one job analyst ranks importance of the KSAOs required in the job as problem solving, ability to deal with difficulty people, and physical strength, in that order, a second job analyst should provide the same rank order. Approaches to measuring interrater reliability is to compute a simple bivariate correlation between job analysts on their ratings or an intraclass correlation coefficient.
2. Interrater agreement: To what extent do the different job analysts give the same information? In rating problem solving, ability to deal with difficult people, and physical strength on a 1 to 7 scale of importance do the raters give the same rating on the scale for the three requirements? One could have high interrater reliability in the sense that the rank order of ratings is the same

across job analysts, but job analysts could disagree in the point on the rating scales that they assign to the job.

3. Discriminability between jobs: To what extent does the job analysis allow a determination of the differences among jobs? If all jobs receive the same ratings perhaps in an attempt to make the job look demanding and worthy of higher pay, then the job analysis lacks discriminability.

4. Dimensionality of factor structures: This is relevant to the construct validity of the job analysis procedure. A job analysis procedure that is high on this criterion captures the underlying dimensions that are believed to describe the jobs that are analyzed. For instance, if one believes that complexity in dealing with people, data, and things are the three primary dimensions then factor analyses of information produced with an inventory should confirm this factor structure.

5. Mean ratings: This refers to the extent that ratings are biased in a positive or negative direction. The more common problem in job analysis is inflation in which job analysts tend to rate all jobs positively on tasks and KSAOs.

6. Completeness of job information: A job analysis is complete to the extent that it provides a comprehensive picture of all the important activities and demands in the job. For instance, if a job analysis of a teacher's job failed to cover the cognitive activities of the teacher and focused instead on physical activities, the analysis would be incomplete.

There are two general sources of inaccuracy in job analyses (Morgeson & Campion, 1997) — social and cognitive. Social sources include the pressures both subtle and overt that stem from the social environment of the job analysis and that bias the outcome of the job analyst. This distinction between social and cognitive is based not only on the research literatures from which the sources of inaccuracy are derived but also on the differences between the processes that underlie the sources of inaccuracy. That is, social sources of inaccuracy are created by normative pressures from the social environment and reflect the fact that individuals act and reside in a social context. Conformity is a social source of inaccuracy in which a job analyst yields to group pressures and provides an analysis that is congruent with the analyses of other job analysts. Self-presentation bias is a second social source of inaccuracy in which the job analyst attempts to convey a favorable or socially desirable image to others in the analyses. Cognitive sources of inaccuracy are associated with limitations in the ability of humans to process information and systematic biases in information processing. To deal with limitations in the ability to process information, analyst may fall back on cognitive heuristics or shortcuts that produce inaccuracy in job analyses. Systematic biases in information processing include halo, order effects, and carelessness.

To make sure that job analyses produce accurate information, all six of the types of inaccuracy need to be examined when evaluating a job analysis procedure. They provide six recommendations for how to deal with the sources of inaccuracy and ensure accurate job analyses.

1. Use multiple job analysts rather than rely on just one or a few. With more job analysts, the strengths of one analyst are more likely to compensate for the weaknesses of another.

2. Use multiple job analysis methods rather than use just one method. Any one method is likely more vulnerable to one or more of the sources of inaccuracy, but the use of more than one can compensate for these vulnerabilities.

3. Structure the data collection processes so that job analysts have a clear understanding of what they are to do in the job analysis. Part of this structuring is instruction in the purpose and importance of the job analysis.
4. Closely monitor and supervise the job analysis to ensure that the data are being gathered in a timely manner and to allow correction of problems as they arise during the process.

### How is a Job Analysis Conducted?

A variety of methods are used in collecting information and performing measurements in a job analysis. Three questions are posed in considering how job analyses are conducted: Which method should the job analyst use to collect the information? Who should the analyst pick as the source of the information? How much information does the analyst need to collect?

### Methods of collecting job information

The approach taken to gathering task information is crucial to the accuracy of job analysis. A common dilemma is whether to choose methods that allow the cheap collection of a lot of information (e.g., self-report questionnaires) or methods that are more expensive but allow more intensive examinations of individual jobs (observation and interviews). The best advice is to avoid reliance on one approach and instead to use multiple methods.

### Observation method of job analysis

With the observation method of job analysis, the analyst watches the employee at work and records the work activities as they are performed. The prototype of the observational method is the classic time-and-motion specialist at work with stopwatch in hand, recording the various elements of the worker's activities.



Observation Method of Job Analysis

Although analysts always should observe the work to some extent, peering over the shoulder of a worker is likely to disrupt work activities and is not very useful in describing jobs with a heavy

cognitive component. The processes by which a manager weighs alternatives and reaches a decision, a technician troubleshoots a computer bug, and an air traffic controller determines how to coordinate aircraft landings are examples of work activities that are not very accessible to direct observation. In these cases, a less direct form of observation in the form of think aloud procedures are sometimes used to capture cognitive work. In this procedure, employees are asked to describe what they are thinking in the midst of performing a task. Although useful, think aloud procedures are only as good as the self-insight of the worker providing the information. One finding from the research on expertise is that those who have mastered tasks such as chess have difficulty in describing why they perform as well as they do. Also, similar to other observational methods of job analysis, asking a person to think out loud as they perform a task can disrupt the performance of the task.

#### Interview method of job analysis.

Because of these and other problems in observation, job analyses are more often based on retrospective interviews with subject matter experts (SMEs), who are people familiar with the job (either incumbents or supervisors). The interviewers ask the SME to think back on their past work activities and to describe what they did, how they did it, what it took to do well, and other questions associated with job analysis. An interview with a group of experts is called a technical conference or jury. Go to the following link for an example of the interview method of job analysis used to learn about the work of paramedics.

<http://paramedictv.ems1.com/Media/934-Paramedics-Discuss-Job-Highs-and-Lows/>

#### Questionnaires.

In another common alternative, employees provide a retrospective account of their past and present work activities. An intriguing variation on self-report is to have incumbents keep a daily diary of their activities. The self-report questionnaire involves retrospective self-reports of work activities by SMEs, who check off and rate the frequency, importance, difficulty, and other characteristics of a list of possible tasks (the inventory checklist method). Questionnaires are perhaps the most efficient manner of collecting information. Their primary limitation is the tendency of respondents to embellish their work by reporting more responsibilities or demands than really exist. This type of bias is not surprising given that a job analysis can lead to important changes such as the revision of the pay structure and the elimination or restructuring of jobs. Despite its problems, self-report is an effective means of collecting a large amount of job information at a relatively low cost.

#### Using a combination of methods.

There are no perfect methods of gathering information on jobs. The best advice is to avoid reliance on one approach and instead use multiple methods (Morgeson & Campion, 1997). Each of the alternatives has advantages and disadvantages, but the use of more than one can allow the analyst to compensate for the weaknesses of one with the strengths of the other. As a first step, a job analyst observes the work firsthand. They also review archival data in the form of job descriptions, procedural manuals, training documents, and the like. Following this, they administer a questionnaire in which employees and others familiar with the job report on job



duties. To verify, elaborate, and clarify information gathered in the self-report phase, analysts also conduct group or individual interviews.



Who provides the information?

There are several alternative sources of job information, including incumbents, supervisors, and trained job analysts. As in the case of the various methods of collecting job information, each source has advantages and disadvantages, and the best advice is to use more than one source. Incumbents (those currently performing the work) know more about what they do than anyone else, but not all incumbents provide accurate and reliable data. One problem is inflation as a consequence of respondents embellishing the job and describing it as more demanding and important than it really is. A meta-analysis of the relation of the quality of job analysis data and source shows that supervisors provided less inflated ratings in job analyses than incumbents (DuVernet, Dierdorff & Wilson, 2015). It is not uncommon to find that mistakes occur as the consequence of incumbent careless responding to long, tedious questionnaires. A demonstration of these problems is provided in a study collecting job information from mental health workers who provided direct care to patients (Green & Stutzman, 1986). A clever aspect of this study is the inclusion of five tasks in the inventory that are irrelevant to the job and could not have been performed. Among the five irrelevant tasks are "Prepare budget for facility" and "Complete yearly evaluation of other employees." An example of a relevant task is "give bed-bath to bedridden residents." Interestingly, 57% of the incumbents said that they spend time performing tasks that they could not have performed. Seventy-two percent of these respondents even state that these tasks are at least somewhat important to their jobs. The authors recommend using a procedure such as this to screen incumbents for careless and embellished responding. They also suggest that job analysts use a large number of incumbents when jobs are not well-defined, and there are large variations in tasks performed across incumbents.

Common sense suggests that analysts are chosen who are trained and experienced in job analysis procedures and that the best performing employees are picked as sources of information on the job. But do the characteristics of the analyst and the source of information make a difference in

the accuracy and reliability of job analyses? We know relatively little about the characteristics that distinguish effective from ineffective job analysts, but the research so far suggests that some of our common sense notions are wrong. The research generally has shown that employees who are poor performers are no less accurate in how they respond to job analysis questionnaires than employees who are high performers (Wexley & Silverman, 1978; Conley & Sackett, 1987). Other research has shown that the sex, race, occupation, and tenure of incumbents have little effect on the ratings they provide in job analyses (Schmitt & Cohen, 1989; Arvey, Passino, & Lounsbury, 1977).

Some findings even cast doubt on whether training and expertise improve job analyses. Much of the research so far has involved the Position Analysis Questionnaire (PAQ), a job analysis technique discussed in more detail later in this chapter. Smith and Hakel (1979) report that untrained college students provide ratings that are as reliable as the ratings of trained analysts and supervisors. In explaining these findings, the authors speculate that experts and nonexperts share a common stereotype of the jobs and that as a consequence, they do not differ much in their descriptions of occupations on the PAQ. This surprising finding probably strikes fear in the hearts of consultants who depend on their expertise in job analysis to make a living, but the Smith and Hakel study has not gone without criticism (Cornelius, DeNisi, & Blencoe, 1984; DeNisi, Cornelius, & Blencoe, 1987). The high correlations are likely distorted somewhat because a large number of the PAQ items are irrelevant to the jobs and are not rated. One study finds that when the job analysis technique is used with jobs that are more relevant to the technique, experts differ from nonexperts in the reliability of their ratings (DeNisi, Cornelius, & Blencoe, 1987). The differences found in this study are not as large as one might expect, however, and depend on the job that is analyzed. For the job of hairdresser, where there is a commonly held stereotype of the activities, there is very little difference in the reliability in the ratings of naive and expert raters. For the job of electrician, where the stereotypes of what is done in the job are not as clear, experts are much more reliable than naive raters.

A crucial factor influencing differences between experts and nonexperts is the familiarity of the judges with the dimensions and tasks that are analyzed. College students can estimate physical requirements as accurately as specialists (Hogan, Ogden, Gelhardt, & Fleishman, 1980; Hogan & Fleishman, 1979), a finding that probably reflects the fact that expertise provides little advantage in this familiar domain. With less familiar jobs and more complex job analysis procedures, the differences between trained and experienced analysts are, as one might expect, more pronounced. There are a variety of reasons that one should use job analysts who are trained in the procedures and who have experience. If for no other reason, expert job analysts are preferable because their findings are more acceptable to employees and management. However, in the domain of job analysis as well as in many other areas of Human Resource Management, one should not automatically expect the so-called expert to provide superior information, insight, predictions, or assessments. The client paying for these services is advised to exercise a healthy amount of skepticism.

How much information is needed?

Closely related to the question of the training and expertise of raters is the question of how much

job-related information is needed to obtain accurate and reliable job ratings. Some evidence suggests that less information is needed than often thought (Smith & Hakel, 1979; Arvey, Davis, McGowen, & Dipboye, 1982; Hahn & Dipboye, 1988). Cornelius, Schmidt, and Carron (1984) compare the accuracy of two approaches to classifying jobs into occupational groups. In one approach, supervisors and incumbents rate their jobs on a 130-item job inventory. With the other approach, supervisors and incumbents simply indicate the occupational group to which the title belonged. The authors report that the second approach is 96% accurate in making this classification. The authors conclude that when the job analysis is intended to determine the similarity of jobs, "any procedure other than simple judgments by incumbents and supervisors is likely to be quantitative overkill" (p. 259). Sackett, Cornelius, and Carron (1981) report similar results. They compare a laborious behavioral description approach requiring hundreds of hours to conduct with a simple global judgment that requires about 15 minutes. The two methods yield almost identical results.

There is undoubtedly some point of diminishing returns at which more information fails to improve the analysis. Evidence of this comes from a meta-analysis showing that job analysis inventory length is positively related to quality of the information gathered up to a point and then declines past this point (DuVernet et al, 2015). Determining when the point of diminishing returns is reached is an important area for future research. Until this research is conducted, legal considerations suggest that the analyst use as much information as possible, even if he or she risks overkill. Hiring and other human resource management practices are more defensible against claims of unfair discrimination if experts base them on thorough job analyses. If legal considerations are not important, the findings show that more is not always better and the costs of collecting large amounts of information in a job analysis do not always outweigh the benefits.

### Specific methods of job analysis

I/O psychologists and others in the field of human resource management have developed numerous techniques of job analysis. One way of distinguishing among them is on the basis of whether they concentrate on behavioral descriptions of the tasks, the requirements of the job, or some combination of the two. Another way of distinguishing among job analysis methods is whether the language used in the job analysis is work oriented or worker oriented and the extent to which the language is specific to the position or refers to the location on an abstract, underlying dimension. Analysts cannot readily use techniques that are specific to the position to compare positions that are very different. Other techniques describe jobs in terms of general behavioral processes or KSAO dimensions and are used to compare a wide range of jobs. These methods include task inventories, functional job analysis (FJA), and the position analysis questionnaire (PAQ). Other techniques focus on the requirements of the job. These include the critical incidents technique (CIT) and the ability requirements scales. There are also eclectic techniques that combine these techniques such as the multidimensional job design questionnaire (MJDQ) and the techniques used in O\*NET. This doesn't exhaust the specific techniques of job analysis. For a good discussion of other techniques go to this link: <http://www.hr-guide.com/data/G012.htm>

### Behaviorally-oriented techniques.

Some methods of job analysis are focused on the task activities and behavior of the person in the positions. These include the task inventory, Functional Job Analysis (FJA), and the Position Analysis Questionnaire (PAQ).

\*The task inventory. The Air Force has conducted most of the work on the task inventory approach to job analysis (Archer & Fruchter, 1963; Gael, 1983); an example of one of their task inventories is shown figure 11.1.

<b>Task</b>	<b>Check if task is done</b>	<b>Time Spent</b> 1 – small amount 2 – less than average 3 – average 4 – above average 5 – large amount	<b>Difficulty</b> 1 – one of the easiest 2 – easier than most 3 – average 4 – harder than most 5 – one of the hardest
Sterilize or disinfect instruments			
Set up instrument tray			
Expose dental diagnostic x-rays			
Record treatment information in patient records			
Instruct patients in oral hygiene and plaque control programs.			
Order and monitor dental supplies and equipment inventory.			
Fabricate temporary restorations or custom impressions from preliminary impressions.			
Pour, trim, and polish study casts.			
Clean and polish removable appliances.			
Clean teeth, using dental instruments.			
Schedule appointments.			
Prepare bills and receive payment for dental services.			
Complete insurance forms.			
Maintain records using computer.			
Apply protective coating of fluoride to teeth			
Flush oral evaluator systems.			
Lubricate dental equipment or appliances			
Prepare work order or maintenance requests.			
Assist with intravenous (IV) sedations.			
Apply prescribed topical medications.			
Assist in emergency procedures such as managing syncope or providing oxygen to patients.			

Table 11.1: Task Inventory Checklist for a Dental Assistant (partial listing of tasks)

Three basic steps are involved in the construction and administration of a task inventory. First, through observing the work, examining existing job descriptions, and talking to experts, supervisors, and incumbents, the analyst generates a list of task statements that are then used to describe a particular field of work. This list is reviewed by people knowledgeable about the work and then administered to a group of workers who are asked to delete, add, and modify the task statements. The final version typically contains 100 to 500 task statements. Often space is

provided on the inventory for respondents to add tasks so that the inventory can keep pace with changes that occur in the job. The final version is administered to incumbents, who check off those tasks performed. The beauty of this method is that it also allows a variety of quantitative ratings for each task: relative time spent, the difficulty of learning, importance, criticality, difficulty, and frequency.

There is controversy as to whether all these scales are needed. Friedman (1990) examined the intercorrelations among ratings of tasks on a seven-point scale on *relative time spent* (1 = spend a very small amount of time on this task as compared with most tasks performed and 7 = spend a very large amount of time on this task as compared with most tasks performed), *frequency* (1 = about once every year and 7 = about once each hour or more often), and *importance* (1 = very minor and 7 = extreme importance). Time and importance ratings were redundant, but frequency ratings did not appear highly correlated with either of the other ratings. A recent meta-analysis reports that more objective rating scales such as time spent and frequency of tasks yield generally higher quality information than more subjective ratings such as importance (DuVernet, Dierdorff & Wilson, 2015).

**\*Functional Job Analysis (FJA).** The task inventory method is tailored to the specific job, but Functional Job Analysis (FJA) is a standard technique that is used to compare very different jobs (Fine, 1988). In this procedure, the analyst begins by generating task statements and then rates each of the task statements on its orientation and level with regard to data, people, and things (see figure 11.5).

Orientation is measured by allocating 100 percentage points across these three functional areas to indicate how much of each is involved in the task. A job's relationship to data, people, and things is rated for each function on a scale that reflects the level of complexity of the relationship. The lower the number assigned on each scale, the higher the degree of complexity with which a person engages in the function. The data function scale measures the degree of complexity with which the individual handles "information, ideas, facts, and statistics." At the lowest level of complexity is simple comparing, in which the incumbent selects or sorts on the basis of simple judgments of similarity or differences and copying, in which the incumbent transcribes, enters, or posts data. The highest level of complexity is synthesizing, in which the incumbent "Takes off in new directions on the basis of personal intuitions, feelings, and ideas to conceive new approaches." According to Fine, data are always involved to some extent, even when jobs are primarily concerned with things or people. The things scale ranges from precision working at the highest level of complexity to simple handling at the lowest level. The people scale ranges from leading and mentoring at the highest level of complexity to taking instructions at the lowest level. After the rating of each task on all three dimensions, the ratings of the job are combined as a measure of the total level of complexity at which the worker performs.

Research has shown that the inter-rater agreement of expert judgments of occupations on the three dimensions in FJA are generally acceptable (Geyer, Hice, Hawk, Boese, & Brannon, 1989). It is important to note, however, that occupations are rated in this study, not jobs. A specific job in an organization having the same title could receive quite different ratings. Perhaps the greatest advantage of FJA is that it allows analysts to compare very different jobs on the same general dimensions. Still another advantage is its simplicity. The extent of training and experience

required to use this method is much less than that required for many of the other job analysis techniques discussed in this chapter. As useful as this procedure is, however, FJA is far too general for many objectives. Also, there is little research evaluating the construct validity of Fine's (1988) FJA. The few studies that exist have cast doubt on the hierarchical structure of the three dimensions (Harvey, 1991).

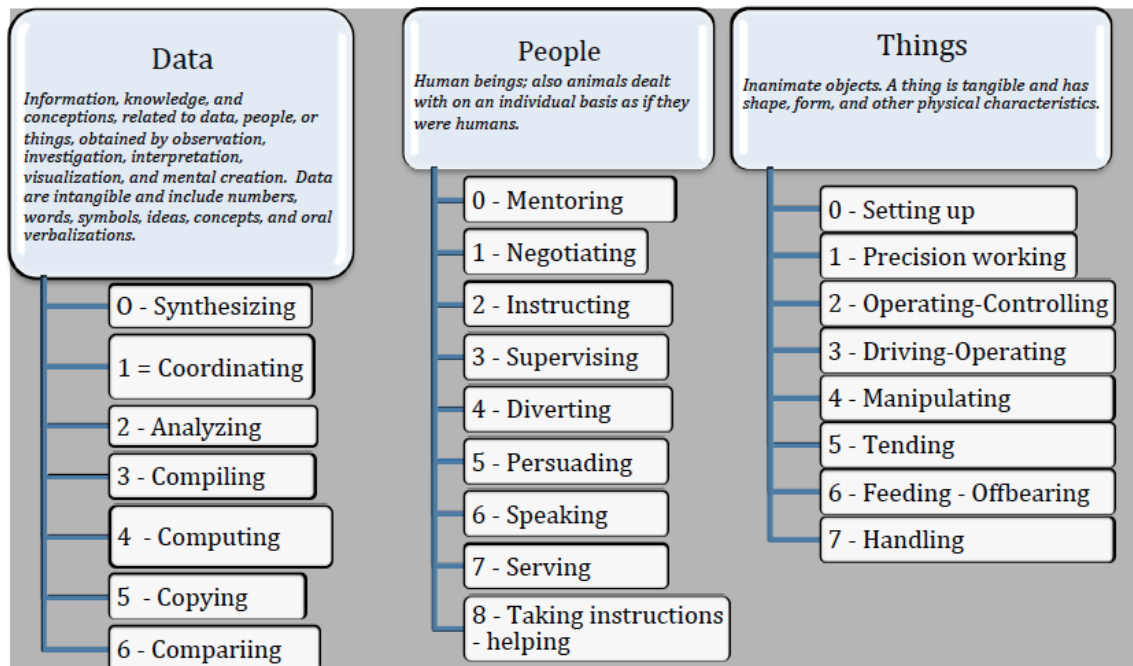


Figure 11.5: Data, People, and Things Scales Used by the United States Employment Service in Analyzing Occupations.

**\*The Position Analysis Questionnaire (PAQ).** The PAQ is a behavioral description method that provides a much more detailed analysis than FJA but similar to the FJA still allows for comparison of very different positions. The development of this procedure by the late Ernest J. McCormick and his students at Purdue University is one of the most important contributions to job analysis in the last fifty years. The latest version of the PAQ consists of 194 items. These job elements, as McCormick calls them, are organized into six divisions that follow a stimulus-organism-response (S-O-R) model of human behavior. Table 11.2 lists the six original divisions of the PAQ. The first of the six original divisions contains behaviors relating to the input of information. The second PAQ division is concerned with the processes that mediate inputs and outputs. Work output is the third division and is concerned with how employees act on the information to produce some service or product. These three divisions represent the heart of the S-O-R model that guided the construction of the PAQ. Two other divisions describe the interpersonal activities (e.g., negotiating, persuading, instructing, etc.) and the work situation and job context (e.g., outdoor/indoor, noise, frustrating situations, and strained personal contacts). The final division is a grab bag of miscellaneous aspects including work schedule, pay, time pressures, and responsibilities. In describing a job with the PAQ, the analyst first determines whether each element applies to the job. For most jobs, many of the elements fall in the “does not apply” category. Of the elements that are involved in the job, the analyst rates the extent of



involvement using such scales as the extent of use, amount of time spent, importance to the job, possibility of occurrence, and applicability.

In an early study that established the underlying structure of the PAQ, McCormick, Jeanneret, and Mecham (1972) use the PAQ to describe a large number of jobs on 184 of the job elements. Factor analyses of these ratings yield 32 divisional dimensions, with six found for information inputs, two for mediators, eight for work outputs, five for relationships with other people, three for job contexts, and eight for a miscellaneous division (see table 11.2).

DIMENSIONS OF THE POSITION ANALYSIS QUESTIONNAIRE
<b>Technical title</b> <b>Division 1: Information Input</b> 1. Perceptual interpretation. 2. Input from representational sources. 3. Visual input from devices/materials. 4. Evaluating/judging sensory input. 5. Environmental awareness. 6. Use of various senses. <b>Division 2: Mental processes.</b> 7. Decision making. 8. Information processing. <b>Division 3: Work output.</b> 9. Using machine/tools/equipment 10. General body versus sedentary activities 11. Control and related physical coordination. 12. Skilled/technical activities. 13. Controlled manual/related activities. 14. Use of miscellaneous equipment/devices 15. Handling/manipulating/related activities. 16. Physical coordination. <b>Division 4: Relationships with other persons</b> 17. Interchange of judgmental/related information. 18. General personal contact. 19. Supervisory/coordination/related activities 20. Job-related communications. 21. Public/related personal contacts. <b>Division 5: Job Context</b> 22. Potentially stressful/unpleasant environment. 23. Personally demanding situations. 24. Potentially hazardous job situations. <b>Division 6: Other Job Characteristics</b> 25. Nontypical versus typical day work schedule. 26. Businesslike situations. 27. Optional versus specified apparel. 28. Variable versus salary compensation. 29. Regular versus irregular work schedule. 30. Demanding job responsibilities. 31. Structured versus unstructured job activities. 32. Vigilant/discriminating work activities.

Table 11.2: Division Organization of the PAQ Instrument

A separate analysis of PAQ descriptions of 2,200 jobs 32 divisional dimensions and 13 overall dimensions identified through factor analysis. The 32 divisional dimensions are listed in table 11.2. The 13 overall dimensions are the most frequently used in practical applications of the PAQ and are listed in table 11.3.

### **OVERALL DIMENSIONS OF THE POSITION ANALYSIS QUESTIONNAIRE (Derived from Factor Analyses of Questionnaire Responses)**

1. Decision/communication/general responsibilities
2. Machine/equipment operation.
3. Clerical/related activities.
4. Technical/related activities.
5. Service/related activities.
6. Regular day schedule versus other work schedules.
7. Routine/repetitive work activities.
8. Environmental awareness.
9. General physical activities.
10. Supervising/coordinating other personnel..
11. Public/customer/related contact activities.
12. Unpleasant/hazardous/demanding environment.
13. Nontypical work schedules.

Table 11.3: Factors Derived from Factor Analyses of PAQ Responses

The PAQ is valuable in both research and practice. The PAQ is used in the design of a variety of personnel functions including compensation, selection, training, and vocational counseling. A large data bank contains PAQ analyses with thousands of jobs and allows comparisons among markedly different jobs on general dimensions. One of the more interesting comparisons shows that the work of the homemaker is most similar to the work of patrolman on the divisional dimensions (Arvey & Begalla, 1975). Other jobs with PAQ profiles that were similar to the homemaker include home economist, airport maintenance chief, kitchen helper, and firefighter. Another interesting study reports that the ratings of occupations on the PAQ's 32 divisional dimensions are predictive of a variety of stress indicators, including hypertension, ulcers, cirrhosis, suicides, and anxiety/depression (Shaw & Riskind, 1983). The PAQ is particularly useful in determining the abilities and traits required in a job. Several studies provide estimates of the importance of 76 human attributes in predicting performance on each of the elements in the PAQ (Marquardt & McCormick, 1973; Meham & McCormick, 1969a, 1969b). This research provides equations that allow an analyst to describe a job using the PAQ and then statistically generate the profile of the attributes typical of people in the job.

Despite its many advantages, the PAQ has several drawbacks. In describing a specific job, many of the items in the PAQ are irrelevant, and the high rate with which the "does not apply" option is checked can distort the results of the statistical analyses. For instance, a large proportion of items involve the use of machines and equipment and are inappropriate for use with professional



and managerial jobs and other jobs involving a large cognitive component. McCormick and his colleagues developed the Professional and Managerial Position Questionnaire (PMPQ) to correct this deficiency. Still another potential drawback is the difficulty of the language. Ash and Edgell (1975) find that interpretation of the instructions and questions in an earlier version of the PAQ require the ability to read at a college level. Recent revisions of the PAQ are more readable. Still, the PAQ is sufficiently complex to require a trained analyst. This makes it costly to administer.

Techniques focused on requirements.

The PAQ, FJA, and task inventory describe jobs in terms of the activities that are performed. Job analysts must often go beyond describing job activities to pinpoint the behaviors and personal attributes that are required to perform the work successfully. Two other techniques that are focused on identifying the crucial components of the work are the Critical Incident Technique and the Ability Requirements Scales.

\*The Critical Incidents Technique (CIT). Of all the methods that emphasize behavioral requirements, no other procedure is as frequently employed as the Critical Incidents Technique (CIT). John C. Flanagan (1954) developed this method for use in the U.S. Army Air Corps during World War II. A typical set of instructions used in the CIT is presented in table 11.4. Employees are asked to think of a specific incident involving an example of extremely effective or extremely ineffective performance. Extreme behaviors are seen as more easily remembered and described than average behaviors. Once the critical incidents are generated, the next step is to determine the dimensions of performance reflected in these incidents. The usual procedure is to have employees sort the incidents into piles, each pile representing a critical dimension of job performance. Table 11.4 provides questions that Fleishman describes as typical of a CIT interview.

As with all the techniques discussed in this chapter, the critical incident technique is limited in some respects. The method is best suited to determining the crucial factors in a job, but it does not provide a good picture of what is typically involved. A dimension that is crucial to performance could reflect tasks that rarely occur. Another potential problem is a tendency to attribute events in the job to the traits of the person. Flanagan gives an example of a study in which supervisors were asked "Tell just how this employee behaved which caused a noticeable decrease in production." Almost all incidents provided in response to this question had to do with personality and attitudes rather than behaviors. They subsequently changed the question to "Tell just what this employee did, which caused a noticeable decrease in production." This second question produced a much broader range of incidents that were more behavioral and less trait oriented. Subtle biases are not so easily anticipated and are best avoided by pretesting the questions ahead of time. The interviewer should pose the question so that respondents take into account situational factors rather than simply attributing the incident to traits.

Think of the last time you saw one of your subordinates do something that was very helpful to your group in meeting their production schedule. (Pause till the employee indicates that he or she has such an incident in mind). "Did that subordinate's action result in an increase in production of as much as one per cent for that? – or some similar period?" If the answer is "no" say: "I wonder if you could think of the last time that someone did something that did have this much of an effect in increasing production." (When the employee indicates that he or she has such a situation in mind, say: "What were the general circumstances leading up to this incident?"

Follow up with these questions:

1. Tell me exactly what this person did that was so helpful at that time.
2. Why was this so helpful in getting your group's job done?
3. When did this incident happen?
4. What was this person's job?
5. How long has he or she been on this job?
6. How old is he or she?

Table 11.4: Sample of a Form for Use by an Interviewer in Collecting Effective Critical Incidents





\*Ability Requirements Scales. A more structured approach to determining ability requirements than the CIT is a set of rating scales devised by Fleishman and his associates (Fleishman & Quaintance, 1984). The Ability Requirement Scales measure the extent to which each of abilities listed in tables 11.5, 11.6, and 11.7 is important to the performance of a job. The abilities and the scales used to measure them are derived from extensive research and include not only psychomotor and physical abilities but also a variety of cognitive abilities.

The extent to which a task requires one of these abilities is rated on a scale developed specifically for that ability. Take, for example, the rating scale used to evaluate a task on *static strength* (see Figure 11.6). A task is rated as high on requiring static strength (a 6 or 7) if the task required a great amount of lifting, pushing, pulling, or carrying of objects. Each point on the scale is behaviorally illustrated to anchor the various levels of static strength: "reach over and lift a 70 lb. box onto a table" versus "lift a package of bond paper." An anchor is the behavior used to represent a numerical scale value. Another example is the scale used to rate the extent of verbal comprehension required in the task. In this case the anchors for the high and low ends of the scale are "understanding in entirety a mortgage contract" versus "understanding a comic book." Take, for example, the rating scale used in evaluation of a task on verbal comprehension. A task is rated as high on requiring verbal comprehension (a 6 or 7) if the incumbent were required to understand complex, detailed information. On the other hand, a low level of verbal comprehension is required if only a basic knowledge of language is necessary to perform the task. The scale is anchored to illustrate the various levels of verbal comprehension: "understanding in entirety a mortgage contract..." vs. "understanding a comic book."








## I. Cognitive Abilities

Enduring attributes that influence performance by influencing the acquisition and application of knowledge in problem solving

Verbal Abilities — Abilities that influence the acquisition and application of verbal information in problem solving


-  Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
-  Written Comprehension — The ability to read and understand information and ideas presented in writing.
-  Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
-  Written Expression — The ability to communicate information and ideas in writing so others will understand.


Idea Generation and Reasoning Abilities — Abilities that influence the application and manipulation of information in problem solving

-  Fluency of Ideas — The ability to come up with a number of ideas about a topic (the number of ideas is important, not their quality, correctness, or creativity).
-  Originality — The ability to come up with unusual or clever ideas about a given topic or situation, or to develop creative ways to solve a problem.
-  Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem.
-  Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
-  Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
-  Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
-  Category Flexibility — The ability to generate or use different sets of rules for combining or grouping things in different ways.


(Cognitive Abilities continued)

**Quantitative Abilities** — Abilities that influence the solution of problems involving mathematical relationships


 **Mathematical Reasoning** — The ability to choose the right mathematical methods or formulas to solve a problem.


 **Number Facility** — The ability to add, subtract, multiply, or divide quickly and correctly.


**Memory** — Abilities related to the recall of available information

 **Memorization** — The ability to remember information such as words, numbers, pictures, and procedures.


**Perceptual Abilities** — Abilities related to the acquisition and organization of visual information


 **Speed of Closure** — The ability to quickly make sense of, combine, and organize information into meaningful patterns.

 **Flexibility of Closure** — The ability to identify or detect a known pattern (a figure, object, word, or sound) that is hidden in other distracting material.


 **Perceptual Speed** — The ability to quickly and accurately compare similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time or one after the other. This ability also includes comparing a presented object with a remembered object.


**Spatial Abilities** — Abilities related to the manipulation and organization of spatial information

 **Spatial Orientation** — The ability to know your location in relation to the environment or to know where other objects are in relation to you.

 **Visualization** — The ability to imagine how something will look after it is moved around or when its parts are moved or rearranged.

**Attentiveness** — Abilities related to application of attention

 **Selective Attention** — The ability to concentrate on a task over a period of time without being distracted.

 **Time Sharing** — The ability to shift back and forth between two or more activities or sources of information (such as speech, sounds, touch, or other sources).


Source: [http://www.onetcenter.org/content.html/1.A?d=1&p=1#cm\\_1.A](http://www.onetcenter.org/content.html/1.A?d=1&p=1#cm_1.A)


Table 11.5: Cognitive Abilities Identified in the O\*Net


## II. Psychomotor Abilities

Enduring attributes that influence performance by influencing the capacity to manipulate and control objects


**Fine Manipulative Abilities** — Abilities related to the manipulation of objects


 **Arm-Hand Steadiness** — The ability to keep your hand and arm steady while moving your arm or while holding your arm and hand in one position.


 **Manual Dexterity** — The ability to quickly move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects.


 **Finger Dexterity** — The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble very small objects.

**Control Movement Abilities** — Abilities related to the control and manipulation of objects in time and space


 **Control Precision** — The ability to quickly and repeatedly adjust the controls of a machine or a vehicle to exact positions.


 **Multilimb Coordination** — The ability to coordinate two or more limbs (for example, two arms, two legs, or one leg and one arm) while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.


 **Response Orientation** — The ability to choose quickly between two or more movements in response to two or more different signals (lights, sounds, pictures). It includes the speed with which the correct response is started with the hand, foot, or other body part.

 **Rate Control** — The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object or scene.

**Reaction Time and Speed Abilities** — Abilities related to speed of manipulation of objects

 **Reaction Time** — The ability to quickly respond (with the hand, finger, or foot) to a signal (sound, light, picture) when it appears.

 **Wrist-Finger Speed** — The ability to make fast, simple, repeated movements of the fingers, hands, and wrists.

 **Speed of Limb Movement** — The ability to quickly move the arms and legs.

Source: [http://www.onetcenter.org/content.html/1.A?d=1&p=1#cm\\_1.A](http://www.onetcenter.org/content.html/1.A?d=1&p=1#cm_1.A)


Table 11.6: Psychomotor Abilities Identified in the O\*Net.





### III. Physical Abilities


Enduring attributes that influence performance by influencing the strength, endurance, flexibility, balance and coordination

Physical Strength Abilities — Abilities related to the capacity to exert force


 Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

 Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.


 Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.


 Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.


Endurance — The ability to exert oneself physically over long periods without getting out of breath


 Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Flexibility, Balance, and Coordination — Abilities related to the control of gross body movements

 Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

 Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.


 Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.

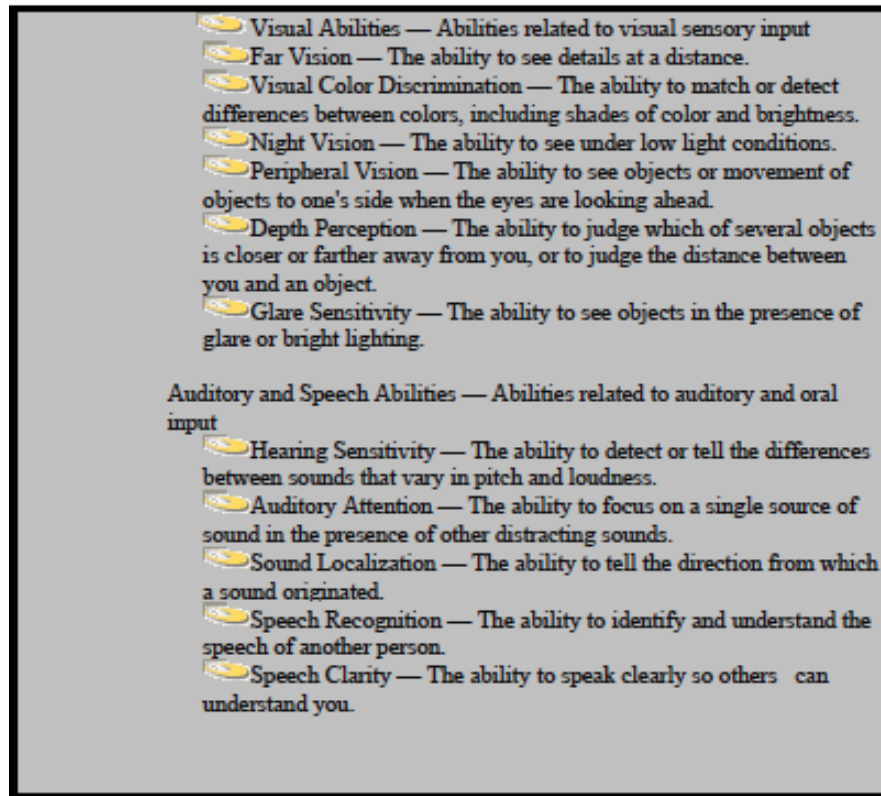
 Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

#### Sensory Abilities

Enduring attributes that influence performance by influencing visual, auditory and speech perception

Visual Abilities — Abilities related to visual sensory input

 Near Vision — The ability to see details at close range (within a few feet of the observer).



Source: [http://www.onetcenter.org/content.html/1.A?d=1&p=1#cm\\_1.A](http://www.onetcenter.org/content.html/1.A?d=1&p=1#cm_1.A)

Table 11.7: Physical Abilities Identified in the O\*Net

32. Static Strength		The ability to exert maximum muscle force to lift, push, pull, or carry objects.
A. How <u>important</u> is STATIC STRENGTH to the performance of <i>your current job</i> ?		
Not Important*	Somewhat Important	Very Important
①	②	③
* If you marked Not Important, skip LEVEL below and go on to the next activity.		
B. What <u>level</u> of STATIC STRENGTH is needed to perform <i>your current job</i> ?		
Push an empty shopping cart		Pull a 40-pound sack of fertilizer across the lawn
①	②	③
		Lift 75-pound bags of cement onto a truck
		④
		⑤
		⑥
		⑦
		Highest Level

Source: [http://www.onetcenter.org/dl\\_files/MS\\_Word/Abilities.pdf](http://www.onetcenter.org/dl_files/MS_Word/Abilities.pdf)

Figure 11.6: Rating Scales Used in O\*Net to Measure Importance of Static Strength

Points to ponder:

1. Compare and contrast the various methods of work analysis. What are the advantages and problems of each approach? What is the best use of each method?
2. What are the biases that can lessen the accuracy of a job analysis?
3. Some critics of traditional work analysis have argued that much less information and effort is needed to conduct these analyses. Many others disagree. What are the arguments for and against for conducting lengthy, highly detailed analyses using expert analysts?
4. Interview someone you know who works or think about a job you have held. Generate critical incidents of successful and unsuccessful performance in these work activities and then attempt to identify the critical requirements of the work from these incidents. Describe the issues involved in inferring requirements from incidents.
5. Keeping in mind the same job that you used in “3”, use the abilities in tables 11.5, 11.6 and 11.7 to describe the requirements of the job.
6. Think about a job you have held or a job held by someone you have observed. Describe the job using the PAQ dimensions (see tables 11.2 and 11.3).

Eclectic techniques.

We have discussed techniques that focus on one of four types of content: behavior description, behavior requirements, trait requirements, and task characteristics. A few other methods go even farther in the direction of using diverse work content in job analysis.

\*The Multimethod Job Design Questionnaire (MJDQ). The Multimethod Job Design Questionnaire (MJDQ) is intended to measure the motivational, mechanistic, biological, and perceptual/motor approaches to describing jobs (Campion & Thayer, 1985). Items in the questionnaire deal with factors as diverse as the autonomy allowed in the job, degree of task specialization, noise, and workplace lighting. Examples of items from each of the four divisions of the questionnaire are found in table 11.8.

\*The Occupational Information Network (O\*NET). This a database managed by the U. S. Department of Labor that contains descriptions of thousands of occupations on the six major content areas in figure 11.7. The Department of Labor draws from existing job analyses approaches in these descriptions including the Abilities Requirements Scales, the Position Analysis Questionnaire, and Functional Job Analysis. O\*NET check out the following link: <http://www.youtube.com/watch?v=M8j7yG0f4wY>

As an example, the readers can use the O\*NET to examine an occupation with which they are all probably familiar: paramedics or to use the O\*NET title, Emergency Medical Technician and Paramedic. This link provides an interview that will provide some initial information on this occupation: <https://www.youtube.com/watch?v=56Nh9FEisME>

The first step in exploring this occupation in the O\*NET is to go to O\*NET online at <http://www.onetonline.org>. If the keyword paramedic is entered, five occupational titles are listed with the relevance of each title to the keyword. The most relevant of these is Emergency Medical Technicians and Paramedics. Clicking on the occupational title leads to the Summary



report for 29.2041.00 Emergency Medical Technicians and Paramedics (see <http://www.onetonline.org/link/summary/29-2041.00>).

<p><b>Sample item from the Motivational Job Design Scale:</b></p> <p>Item #1: Autonomy, responsibility, vertical loading: to what extent does the job allow freedom, independence, or discretion in work scheduling or sequence, work methods or procedures, or quality control, etc?</p> <p>5. Job allows complete autonomy and responsibility for decision making.  3. The job allows some autonomy and responsibility for decision making.  1. The job allows very little autonomy and responsibility for decision making.</p> <p>Relevance of autonomy to job:  3. Highly relevant  2. Minimally relevant.  1. Irrelevant</p> <p><b>Sample item from the Perceptual/Motor Job Design Scale:</b></p> <p>Item # 15: Input requirements: To what extent are the information input requirements on the job within the limitations of the least capable potential worker?</p> <p>5. The information input requirements on this job are minimal. They are within the capabilities of nearly all potential workers and require little mental effort or training/experience.  3. The information input requirements on this job are moderate. They are within the capabilities of the average potential worker but require some mental effort and/or training/experience.  1. The information input requirements on this job are considerable. They are within the capabilities of only the above average potential worker and require much mental effort and or training experience.</p> <p><b>Sample item from the Mechanistic Job Design Scale:</b></p> <p>Item #4: Skill simplification: To what extent is the job designed in such a way that it requires as little skill and training time as possible? To what extent can nearly anyone perform the job with little practice?.</p> <p>5. The job requires very little skill and training time. Most anyone can perform the job with little practice. Training time is only from a few hours to a few days  3. The job requires only moderate amounts of skill and training time. Complete mastery of the job takes from a few weeks to a few months.  1. The job requires a great deal of skill and training time. Training time for this job/skill takes from a year to a few years.</p> <p><b>Sample item from the Biological Job Design Scale:</b></p> <p>Item #6: Strength: To what extent are the muscular strength requirements of the job reasonable? Do any of the tasks require strength levels that may exceed the capabilities of the workers required to perform them?</p> <p>5. This job requires only a limited amount of muscular strength...would not exceed the average capability level of the general population.  3. The job requires a moderate amount of muscular strength....would slightly exceed the average capability level of the general population.  1. The job requires a great amount of muscular strength....would greatly exceed the capability level of the general population.</p>
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Table 11.8: Sample items from the four scales included in the Multimethod Job Design Questionnaire (MJDQ).

## O\*NET Content Model



Source: [http://www.onetcenter.org/dl\\_files/ContentModel\\_Summary.pdf](http://www.onetcenter.org/dl_files/ContentModel_Summary.pdf)

Figure 11.7: The O\*NET Content Model

The summary report provides the most important information from the six content domains listed in the O\*NET content model. By clicking the detail button the reader can delve further into the quantitative analyses used in each of information categories in the content domains. One can see in the information provided all the types of approaches to job analysis discussed in this module.

\*Tasks: This represents the behavioral description approach and uses work or job oriented language. “Administer first aid treatment or life support care to sick or injured persons in prehospital settings” or “Operate equipment, such as electrocardiograms (EKGs), external defibrillators, or bag valve mask resuscitators, in advanced life support environments,” for example, are specific to the occupation and do not comparisons between this occupation and very different occupations. However, this type of work oriented job analysis language is essential to preparing job descriptions. Clicking “detail” produces the importance rating given to each of these task statements.

\*The “tools and technology” category represents a task characteristics approach and is also written in work or job oriented language in that it contains specific devices used in the occupation. These are the most important of this category, but going to the detailed view and clicking the link provided produces over 70 devices and tools used in this occupation.

\*With the knowledge category one can identify areas of knowledge required in the job. This is an example of the personal requirements approach and uses worker oriented job analysis language. The summary provides the most important areas of knowledge that a person in this occupation needs to master. The descriptions are worker oriented in that they describe general psychological domains that are used to compare very different occupations. For example, customer and personal service is a general area of knowledge that is used to describe jobs as divergent as teacher, salesperson, or fast food worker. Again, by clicking the detail button one can see the specific quantitative rating of each knowledge area.

\*Skills are defined in O\*NET as capacities that are learnable and represent the application of knowledge to the performance of the work in an occupation. The basic skills in the O\*NET are reading comprehension, active listening, writing, speaking, mathematics, science, critical thinking, active learning, learning strategies, and monitoring. Skills are an example of the behavioral requirements approach and use worker oriented language.

\*Abilities, unlike skills, are traits that are not easily modified. The Fleishman Ability Requirements Scale is incorporated into the abilities section of the O\*NET. The most important abilities listed for the occupation of paramedic are problem sensitivity (The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem), inductive reasoning (The ability to apply general rules to specific problems to produce answers that make sense), deductive reasoning (The ability to combine pieces of information to form general rules or conclusions), and oral comprehension (The ability to listen to and understand information and ideas presented through spoken words and sentences) are among the most important abilities. Also important are a number of physical abilities such as arm-hand steadiness and multi-limb coordination. Some abilities are only moderately important such as stamina, speed of limb movement, originality, and mathematical reasoning.

\*The work activities section is an example of a behavior description approach that uses worker oriented language. Much of this section borrows directly from the Position Analysis Questionnaire and relies not on specific task activities but broad dimensions of activities. Here the occupation is described in terms of general processes involved in the input and processing of information and the output of that information processing. Among the most important dimensions of work activities are assisting and caring for others, documenting and recording of information, and making decisions and solving problems. The O\*NET distinguishes between tasks, which are described with work oriented language, and work activities, which are described with worker oriented language. The task section contains work oriented accounts of specific tasks that an analyst could not use to compare very different occupations. By contrast, the work activities section contains broad dimensions of behavioral and psychological processes that an analyst could use to make such comparisons.

\*The context section also draws from the Position Analysis Questionnaire. The dimensions that are most important to the paramedic are making decisions that impact others, working in close physical proximity to others, exposure to outdoor weather, working in a group or team, dealing with customers, engaging in face-to-face discussions, being responsible for others, wearing

special equipment, serious consequences of decisions, contact with others, frequent decision making, and exposure to disease and infections. It is important to distinguish between the context of the work and the abilities, skills, and work activities that are related to these contexts. For example, the occupation of paramedic is high on several contextual dimensions relating to decision making. The worker must frequently make decisions that impact others and that have serious consequences if mistakes are made. These represent demands placed on the worker by the environment of the work. Not surprisingly, the work activity dimension of decision making is highly important to a paramedic. To effectively perform the work, the paramedic must have skills such as critical thinking and abilities such as inductive and deductive reasoning, all of which are closely linked to effectively making the decisions.

\*The job zone in O\*NET provides information on the level of vocational preparation needed in the occupation. Data are gathered from both incumbents and subject matter experts to determine the education, training, and experience required. An occupation is assigned to one of five job zones:

Zone 1: Little or no preparation is needed

Zone 2: Some preparation is needed

Zone 3: Medium preparation is needed

Zone 4: Considerable preparation is needed

Zone 5: Extensive preparation is needed

The occupation of paramedic is classified as job zone 3 in that medium preparation is needed. The level of education, experience, and job training are described in this section of the summary report.

The education requirements are based on surveys of incumbents and subject matter experts. As seen here, 43% reported that a post-secondary certificate is required. Thirty percent said that some college but no degree is required. Twelve percent said that an associate's degree is required. This part of the O\*NET is only as good as the sample of respondents. Given that the Department of Labor uses relatively small samples and seldom uses representative sampling procedures, the accuracy of the results is suspect for many of the occupations.

\*The interest section is based on Holland's theory of vocational interests in which occupational interests are classified as social, investigative, realistic, enterprising, and artistic. This represents a behavioral requirements approach to job analysis using worker oriented language. The interest code of SIR indicates that the strongest interests of those involved in the occupation of paramedic are in the social category. Paramedics are interested in helping and providing service to others. The next important areas of interests are investigative and realistic. The least important are enterprising, conventional, and artistic. If the readers go to "My next move" in O\*NET they will find an online interest inventory based on the Holland scheme. Here they can determine their own interests. The research on vocational interests suggests that persons whose interest do not match the interests of those in an occupation are likely to leave that occupation and those whose interests do match are more likely to stay in the occupation, presumably because they are satisfied with their work.

\*The work styles section is also a behavioral requirements approach using worker oriented language. Basically what the O\*NET calls “work styles” are what psychologists refer to as personality traits. The occupation of paramedic is seen as requiring a personality characterized by concern for others, integrity, self-control, stress tolerance, and dependability.

\*Another example of worker oriented language and the personal requirements approach is the work values section is adopted from the Dawis and Loquist (1984) theory of work adjustment. This theory states that employees are satisfactory in their performance of their work and satisfied with their jobs to the extent that the characteristics of the work are congruent with the characteristics of the employees (for a slide show providing a succinct summary see <http://www.slideshare.net/omingja/theory-of-work-adjustment>). The work values section describes the occupation in terms of what the work in this occupation provides in the way of occupational reinforcement patterns. The occupation of paramedic is described as highest on relationships and support. By relationships it is meant that the occupation allows the employee to fulfill values and needs for helping and being of service to others. By service it is meant that the occupation provides management that typically supports employees in the occupation. A person who values and needs support from management and wants to help others would find that the paramedic job fits their work values. Much lower in importance are recognition, achievement, independence, and good working conditions. A person who placed great value on these may well find the occupation of paramedic dissatisfying.

Finally, the report provides a list of related occupations. Realize that the value of worker oriented language is that meaningful comparisons are possible among very different occupations. In this case the paramedic occupation is seen as similar to nurse, police patrol officer, and firefighter occupations. It is also similar to the occupation of embalmer. The relatedness of the occupation does not mean that the occupations share specific tasks but that they are similar on the behavioral processes and personal requirements important to the occupations.

Points to ponder:

1. Find the occupation in O\*Net that comes closest to the occupation you would like to pursue in your career. Describe your preferred occupation using the O\*Net content model and the information provided at the O\*Net website.
2. Provide examples of work oriented and worker orientated language in the O\*Net.
3. The O\*Net provides occupational analyses. A work analysis performed in an organization could start with the O\*Net but would need to go beyond the level of information provided in O\*Net. Explain. What other types of information would be needed and how would it be gathered?
4. To what extent is the information provided in the paramedic interview at the link above congruent with the information in the O\*NET?

## Job Evaluation and the Gender Gap in Compensation

Wage and salary administration is as an important application of job analysis, and job evaluation is a particular type of job analysis that is used for the purpose. Job evaluation is used to judge the relative worth of jobs in an organization for the purpose of setting fair and equitable

compensation rates. It is important to note that jobs, not individual employees, are evaluated with these procedures.

### Methods of job evaluation

There are three primary means of job evaluation: ranking, classification, and the point method. One way of distinguishing among these methods is on whether they evaluate the job as a whole or on the basis of separate dimensions of the job. Another distinction is between job evaluation procedures that evaluate the job against other jobs and procedures that evaluate the job against some absolute standard (McCormick & Ilgen, 1980, p. 379).

#### Ranking.

This procedure is perhaps the simplest and involves ordering a group of jobs on the basis of their relative worth from the highest valued jobs to the least valued jobs. With this method the job is evaluated as a whole and against other jobs. This method is suitable for small organizations, but for most organizations the large number of jobs that the analyst must rank make the technique a crude and unrealistic approach to job evaluation.

#### Classification systems.

Another approach is to judge the whole job against some absolute standard. A classification job evaluation system consists of a series of classes or grades in which the jobs are substantively similar in their worth to the organization. The most widely used classification procedure is the General Schedule (GS) used by the U. S. Office of Personnel Management. The jobs of most employees of the U. S. Federal Government are classified into one of 18 grades. The lowest of these is GS I and involves jobs with the simplest routine activities requiring immediate supervision. GS 9 involves positions requiring general supervision and special technical, supervisory, or administrative experience. Classification systems are generally very crude and are biased by job titles. Moreover, organizations faced with legal challenges to their compensation systems are often hard pressed to defend their classification systems.

#### Point systems.

The most frequently used procedure is the point system of job evaluation and involves evaluating jobs a factor at a time on an absolute rating scale. The specific factors used depend on the particular system. The number of factors range from only one (in the case of Jaques' (1963) Time Span of Discretion (TSD) approach to twenty or more.

The Jaques TSD method focuses on the time lag between an incumbent's actions and when the consequences of these actions become known (see table 11.9). Jobs deserving of higher wages are those in which the TSD is long, whereas those where the TSD is short are deserving of relatively smaller wages. Interestingly, Jaques also proposes that people differ on their time span of discretion with some people able to work toward goals that take a very long time to see the results and others limited to goals that show immediate results.

In the most widely used point system, the Hay Guide Chart-Profile Method (Hay & Purves, 1954), jobs are evaluated on three factors: know how, problem solving, and accountability. Know how refers to the "sum total to every kind of skill, however acquired, required for acceptable performance". These encompass general vocational and specialized technical training as well general human relations skills. Problem solving refers to "original, 'self-starting' thinking required in the job for analyzing, evaluating, creating, reasoning, arriving at and making conclusions." Accountability refers to "answerability for action and for the consequences thereof." Another technique has been developed by the National Electric Manufacturers Association (NEMA) job evaluation system and uses an eleven factor system grouped under four general areas: skill, effort, responsibility, and job conditions. A rating scale is designed to measure each factor, with the scale values reflecting the relative weight of the factor. Table 11.10 provides an example of the point values used in the NEMA system for rating hourly jobs. As seen here, the Experience factor is the most heavily weighted while such factors as mental or visual demand, and responsibility for work of others are weighted the least.

Stratum	Time span range	Typical Roles
VIII	50 years+	Super corporation CEO, e.g., Exxon
VII	20 - 50 years	International corporation CEO
VI	10 - 20 years	Group Vice President
V	5 - 10 years	Business Unit President or CEO of mid-size company
IV	2 - 5 years	General Manager, Large Plant Manager
III	1 - 2 years	Line Manager, Department Director
II	3 - 12 months	Front-line manager, Supervisor
I	Up to 3 months	Front line employee

Table 11.9: Illustration of a Job Evaluation Using Time Scale of Discretion

Another much commonly used type of a point system uses multiple factors and is illustrated in table 11.10. In this case, there are four compensable factors: skill (includes the degree to which the position requires education, training, experience, and the exercise of ingenuity), effort (the degree to which the job demands physical and mental exertion), responsibility (the degree to which the position has responsibility for personnel and material), and working conditions (the degree to which the position requires working in hazardous and unpleasant conditions). The highest possible number of points awarded to a position in this example is 600 and the lowest is 100.



Factors	Wght.	1st Degree	2nd Degree	3rd Degree	4th Degree	5th Degree	6th Degree
Skill	50%	50	100	150	200	250	300
Effort	15%	15	30	45	60	75	90
Responsibility	20%	20	40	60	80	100	120
Work Conditions	15%	15	30	45	60	75	90
Total points	100%	100	200	300	400	500	600

Table 11.10: Example of Point System of Job Evaluation

Although the assumption of the Hay and NEMA systems is that the set of factors is universally applicable, most organizations would want to modify these systems to fit their circumstances. The first step is to conduct a job analysis to determine the major dimensions of the job and those that should serve as "compensable factors." These are the factors such as education, skill, and experience that are important bases for compensating employees. Next a scale is constructed for each factor that reflects the degree to which a job might require or possess each factor and the resulting factors are assigned weights to show their relative importance to the organization. A way of determining these weights is to allocate 100 points among the factors with a higher number of points going to the factors that are believed more important in determining wages. For instance, if the factors were responsibility, effort, work conditions, and skill, the organization might decide allocate 40 points to responsibility, 30 to effort, 20 to skill, and 10 to work conditions.

#### Evaluating internal equity in the wage structure

After evaluating jobs using one of the above procedures, the next question concerns how wages are assigned. To ensure external equity in compensation, employers need to conduct surveys of the going rates of pay to determine whether they wish to match, surpass, or fall below the going rate. In managing internal equity in compensation, the employer constructs a pay policy line such as the one in figure 11.8. A point system was used in this example.

Essentially the line is constructed by plotting the wage of each job in the organization against the numerical value resulting from the job evaluation. Linear regression procedures identify the line that best fits the plot of salaries on evaluation points and this regression line is then used to predict current wages from knowledge of the job evaluation values attached to the job. Jobs that fall along the regression line have compensation that is equitable in terms of internal equity. Those that deviate from this line are either underpaid or overpaid. In these cases, management needs to consider changes to provide internal equity. In some cases, this involves reclassifying the job into a lower wage rate or upgrading the wage. The pay line is a useful tool to track and maintain internal equity. It is not uncommon to find that some jobs appear overpaid as the result of falling far above the pay line whereas other jobs appear underpaid as the result of falling below the line. It is tempting to correct the discrepancy by adding or deleting job evaluation points to bring things back in line. Such a practice is politically expedient, but unless real



changes in the job accompany these modifications in points, this practice makes a sham of the process.

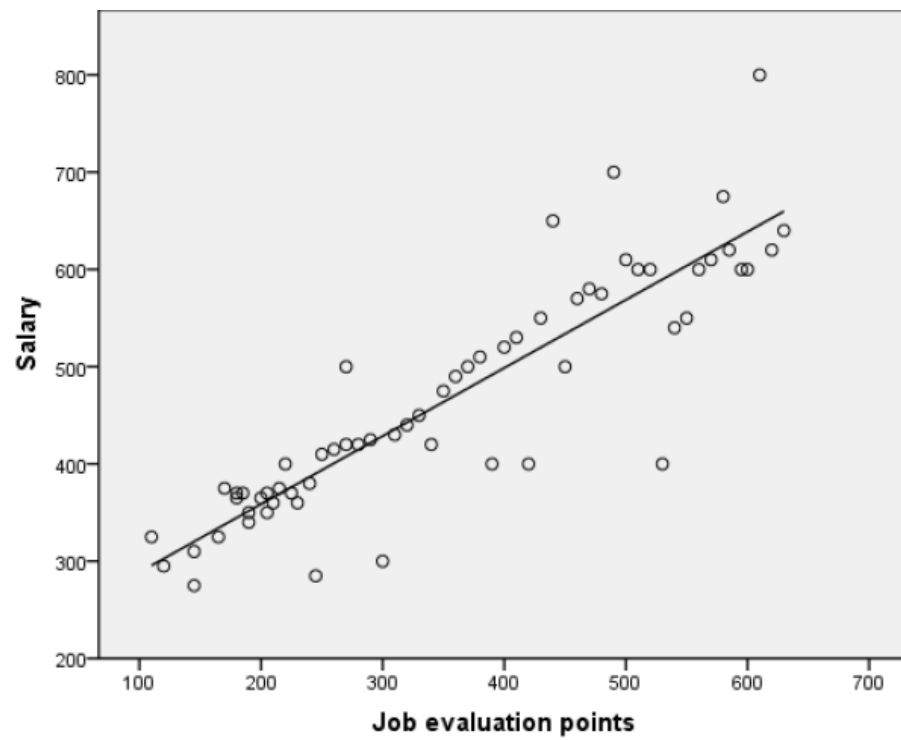
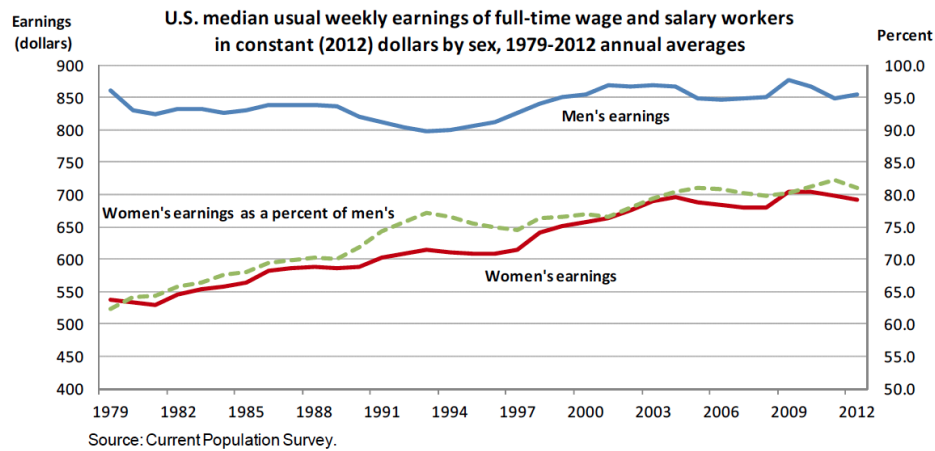


Figure 11.8: Identifying a Pay Line with Linear Regression of Salary on Job Evaluation Points

### Comparable worth and the gender gap in wages

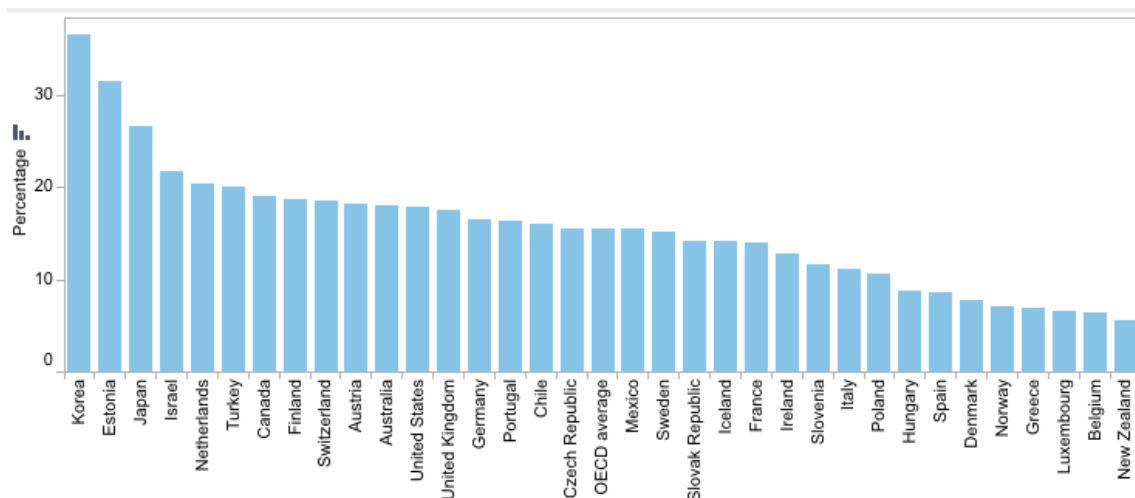
Job analysis and evaluation procedures are at the center of a raging controversy over how to reduce the discrepancies between men and women in their pay. The median earnings of women working full time as a percentage of the earnings of men working full time has improved considerably from the 1960 - 1970 decade when working women in the U. S. received only about 59% of what men were paid. However, a gap between men and women remains in which women earn about 80% of what men do in the United States. The gap is less pronounced in entry level jobs with younger workers than with older workers who are at later stages of their careers. The gap between men and women is presented in the following graphs. Figure 11.9 shows how the gap has narrowed in the U. S. but also shows a flattening in which very little progress in narrowing the gap over the last two decades. The gap in wages of men and women over the age of 35 is much larger than the gap between younger workers.



<http://www.dol.gov/equalpay/regions/2014/national.pdf>

Figure 11.9: Comparison of Male and Female Weekly Earnings from 1979 - 2012

Figure 11.10 shows differences among countries in the wage gap. The gap between men and women is largest in Japan and Korea and least in Denmark, New Zealand, and Belgium. The United States is among the countries with the largest gaps in wages. The data clearly indicate that women are paid less than men and there are several reasons for the discrepancy. Some of the differences in the wage gap between men and women reflect differences between the sexes in career aspirations. Part of the gap is also attributable to the greater tendency of women to drop out of the work force to care for children. Discrimination at work against women is still another factor contributing to the differences. Women are stereotyped as better suited for many lower paid jobs, whereas men are stereotyped as better suited for many high paid jobs. Intertwined with all these factors is the tendency of jobs to become sex-typed with some stereotyped as “male” jobs and others as “female” jobs.



Source: Organization for Economic Cooperation and Development (OECD)

<http://www.oecd.org/gender/data/genderwagegap.htm>

Figure 11.10: Percentage of average men's salary earned by women across countries.

Legal attempts to eliminate the gap in wages between men and women was taken in the U. S. as far back as 1963 when the Equal Pay Act was passed by the U. S. Congress. According to this law, employers are prohibited from paying women less than men if they perform work that is essentially equal in the content of the job on the dimensions of skill, responsibility, effort and working conditions. Critics of this act note that requiring equal content is far too stringent to make it an effective tool for eliminating sex discrimination in wage and salary administration.

Comparable worth is a different doctrine of fairness that states that one should pay women and men the same if they perform work that is similar or comparable on important underlying dimensions. The means of determining comparable worth is to evaluate or analyze jobs using procedures that provide comparisons on broad dimensions. The PAQ, Functional Job Analysis, and point systems of job evaluation are used for this purpose. According to the principle of comparable worth, if an executive secretary's job involves similar behavioral processes and demands as a manager's job, then the secretary is paid the same as the manager despite the obvious differences in the content of the job. Wages are seldom based solely on job analysis procedures, in that employers must pay wages that allow them to compete with other firms in hiring the most qualified employees. As of this date, comparable worth is not required in U. S. Federal laws, although some states have adopted comparable worth policies.

An interesting example of comparable worth is provided in a wage dispute between the city of San Jose, California and the union representing employees of the city. In the summer of 1981, Local 101 of the American Federation of State, County, and Municipal Employees (AFSCME) declared a strike against the city of San Jose, California (Farnquist, Armstrong, & Strausbaugh, 1983). The strike lasted nine days and was unusual in that it was intended to eliminate the gap in salaries between men and women working for the city. In the final settlement of this dispute the city of San Jose incorporated a version of comparable worth in deciding salaries of men and women. The city agreed to hire a consulting firm to conduct job evaluations and to study the salary structure of men and women. The study began with a revision of the classification system that was currently in use. The 540 city jobs were reclassified into approximately 300 job classes representing similar positions. A 9-member committee studied the job descriptions and other documents relevant to each job class and then rated the jobs on the four factors used in the Hay point method: know-how, problem-solving, accountability, and working conditions. The sum of the four ratings (total points) on these factors was taken as a measure of the job's value to the organization.

A scattergram was constructed in which the weekly salary of each job was plotted against the total points assigned to the job. Jobs that were outside the 15% band above and below the overall trend (the regression line or best fitting line - were considered to need adjustments to achieve internal equity. Of overcompensated classes, 27 of 32 were male-dominated and only 1 was female-dominated. Of undercompensated classes, 30 of 46 were female dominated whereas 7 were male-dominated. A perusal of individual jobs illustrates the disparities. Typist Clerk II, a female dominated job, received \$550 a month whereas Aircraft Refueler, a male-dominated job, received \$729 a month. Both jobs were assigned 140 total points in the job evaluation, however. Senior legal secretary, a female dominated job, received a salary of \$665 a month whereas senior carpenter, a male dominated job, received a salary of \$1119 a month. Both received 226 points in the job evaluation study.

Both the city and the union agreed that there was a problem but disagreed on the causes and solution. The pure comparable worth solution would have been to pay all jobs at the trend line. In other words, those jobs above the trend line would have their salaries cut whereas those below are given raises. Although the union did not press for this approach, they did advocate adjustments in the salaries of female-dominated jobs to bring them up to the level of male-dominated jobs. The union argued that these adjustments were needed because of sex discrimination that created wide gaps in the salaries of men and women. City officials, on the other hand, countered that a variety of factors were at work besides discrimination against women. Moreover, they argued that the city had to take into account the going market wages for jobs. Ignoring the labor market and raising the salaries to restore internal equity was a costly approach that would put the city at a disadvantage in recruiting skilled workers. The union went on strike and after eight days reached an agreement. According to the settlement, special equity adjustments were implemented in which female-dominated classes below the regression line would receive 5 - 15% increases in salary over two years to bring them within 5 to 6% of the trend line. For instance, Typist-Clerk II, which was 6.91% below the 10% band, would receive special increases of 2.5% in each of the next two years. Almost all the adjustments were in the female-dominated job classes. None of the male-dominated classes would receive special adjustments over this period.

The critics of comparable worth argue that it is unreasonable to ignore the market place in setting wages. Moreover, basing wages solely on the results of job evaluations without taking into account the ability to pay, risks financial ruin. Still another argument is that jobs should receive equal pay if the occupants perform equal work. Thus, it is possible for two jobs to receive the same overall points but unequal in the points assigned to specific factors. For example, a Clerk-Typist might receive more points from know-how but an Aircraft Refueler might receive more points from working conditions. The higher salaries paid to the aircraft refueler may reflect the relative short supply of persons willing to work under the undesirable conditions. Consequently, it is possible that more compensation is needed to get people to work under the undesirable conditions in the Aircraft Refueler position, whereas an ample supply of persons with the type of know-how required in the clerk-typist job makes it unnecessary to provide additional compensation. Supporters of the comparable worth solution are not persuaded by these arguments and instead believe that the marketplace has held women down for too long. They believe that drastic solutions are needed to reduce the large gaps that continue to separate the wages of men and women.

### Are job evaluation procedures biased?

Using job evaluation procedures in the manner described in the case above is only valid to the extent that they are free of biases against women and minorities. The comparable worth controversy has brought attention to the possibility that job analysis and evaluation procedures are biased against women. A report commissioned by the National Research Council in the late 70's on job evaluation concluded that there are serious problems (Treiman & Hartmann, 1981). These claims lack an empirical basis, however, and are only beginning to receive the attention of researchers. It is difficult to conduct research on sex bias in job evaluation in the real world because of the extreme sex segregation of so many occupations. Controlled

experiments are perhaps the only alternative, and the few that exist fail to reveal dramatic differences in the evaluation of jobs as a function of sex of the incumbent.

Schwab and Grams (1985) report findings from an experiment in which he asked compensation specialists to rate three banking jobs using the Midwest Industrial Management Association (MIMA) point system for office jobs. Information was provided on the bank and the specific jobs evaluated, along with background information on the tenure, sex, and current average salary of current jobholders. The sex ratio of the incumbents and average current pay were manipulated so that half the respondents believed that the job of Banking Representative was predominantly female and the other half believed it was predominantly male. Also, half believed the average salary was currently 22,590 while the other half believed it was 33,880. The information on current salary had a large and significant effect on job evaluations. The higher the current pay of the job, the higher the ratings given to the jobs by the compensation specialists. No differences were found as a function of the sex of the incumbents. The authors warned, however, that the participants in this experiment were more professional and well-trained in job evaluation procedures than the typical job evaluator in industry.

Although sex bias did not appear to influence the evaluations in this study, it is important to recognize that the effect of wage found in the above study reflects a serious problem. Ideally, job evaluation provides a profile of the job on characteristics divorced from market value of the job. Contrary to this ideal, job analysts seldom are unaware of how incumbents in a position are paid relative to other incumbents. It is impossible using current job evaluation procedures to completely separate external factors from internal factors.

### How do occupations become sex-typed?

Jobs and occupations do not remain constant, but can change as a function of changes in market forces, technology, the persons performing the work, and other factors. Especially relevant to efforts to restore equity in the compensation of men and women is the effect that changing sex-composition of a job has on the stereotyping of job requirements. The sex-typing of work appears to result from a complex interplay of technological, organizational, cultural, and demographic forces. Rather than staying constant, radical shifts in the sex-typing of a job can occur as these factors change. An interesting example of this is the job of secretary, which changed from a male to a female job during the 19<sup>th</sup> and 20<sup>th</sup> centuries (Davies, 1982; Lowe, 1987). In the early 1800s the typical clerical worker was a man (over 97%) who performed a variety of duties in managing the office of the business. At the bottom of the hierarchy were the office boys. Another job was that of the clerk who did odd jobs, errands, sweeping, and some copying of correspondence. The bookkeeper kept the financial records of the firm. The copyists, as they were called, would take the rough drafts of the owner/manager of the firm and then put them into final form. The private secretarial position was at the top of the clerical hierarchy, and those occupying this position often moved up to executive positions.

After the U. S. Civil War ended in 1865, many of the large corporations emerged. They were characterized by separation of management and ownership and the division of the business into departments and divisions. To handle the increased paper work generated by these larger organizations, clerical work became increasingly specialized. With the introduction of the

typewriter in the late 1800s, the skilled occupation of copyist became obsolete and the typist emerged as a new job. Women provided a large pool of cheap labor that could fill the demand for these new, more specialized clerical jobs, and schools began training women to fill this demand. Clerical work no longer served as a career path toward management and became a low paid, largely female, occupation. In 1870, females constituted 4.5% of stenographers and typists. By 1930, females constituted 95.4% of these jobs. The private secretarial position also became a female position. While it retained the variety and many of the same responsibilities found in the past, the position was no longer a stepping stone to management. The duties of the private secretary depended to a large extent on the personal relationship of the secretary and boss. Moreover, the secretarial job became stereotyped as a position that required stereotypic feminine attributes.

#### Points to ponder:

1. Define and describe job evaluation as a means of establishing a wage structure in an organization.
2. Some critics have argued that wages should be set on the basis of factors external to the organization (e.g., the going wages in the community) rather than the relative worth of jobs within an organization as determined with job evaluation. Discuss the pros and cons of attempting to maintain internal equity through job evaluation and the creation of salary structures within an organization.
3. There is a gender gap in which women are paid less than men. Do you consider this a serious issue that government needs to correct? Why or why not?
4. Discuss the concept of comparable worth and how job evaluation is used in implementing the comparable worth principle.
5. How do occupations become sex-typed and what are the implications for the status and pay of people working in these occupations? The example of secretarial work is provided. Do you think there are occupations today that are in the process of becoming sex typed as women's work? Identify them and discuss why you think this is happening?

#### Conclusions

Job analysis is the method by which the components of work are identified and studied. Jobs result from the behaviors and attributes of the persons in positions, the interactions of people with the work environment, and the characteristics of the people performing the work. Through observation, interviewing, and self-report of the incumbents themselves, job analysts attempt to capture the essence of positions along one or more of these dimensions. If the activities of persons in positions are similar enough in important respects, they are classified as belonging to the same job.

Information on jobs is gathered using a variety of methods and drawing from a variety of sources. Interviews, questionnaires, diaries, and observation are among the most common means of gathering the data. The subject matter experts (SMEs) who provide the information could include trained analysts, employees who perform the job, supervisors, or other persons knowledgeable about the work. Some persons are probably better sources of job information than others, but research has yet to identify the characteristics of a good analyst. While it seems to

make good sense to use analysts who are well acquainted with the work and trained in the technique, there is little evidence that the demographic characteristics of the analysts or their performance in the job are related to the quality of their job analyses. With some jobs, far less information and expertise are needed to provide accurate and reliable analyses than thought necessary by many job analysts.

Research in industrial and organizational psychology has yielded a variety of techniques. Some are work-oriented descriptions that are very specific to the tasks performed. Others are more worker-oriented and allow broad comparisons among all sorts of work. Much of the research in recent years has focused on the latter approach as exemplified by such standardized, worker oriented techniques as the Position Analysis Questionnaire. Jobs consist essentially of people performing various activities and several techniques exist for describing these activities. Task inventories describe the work in terms of the specific tasks contained in positions. Although quite useful for many purposes, they do not allow comparisons of different jobs because of the task-oriented content. Other techniques describe work in terms of fundamental behavioral processes. An example is Functional Job Analysis that focuses on orientation to, and complexity of involvement with, people, data, and things. The PAQ is the most notable of these and has received the most attention in the research literature.

Other procedures are dedicated to specification of the requirements of the job. In the Critical Incidents Technique (CIT), SMEs generate specific episodes of effective and ineffective performance. Through sorting these incidents into categories, the dimensions of performance that are crucial to successful performance are identified. Fleishman's Ability Requirement Scales provide a means of rating individual tasks in a job on cognitive, physical, and psychomotor abilities. Finally, a variety of different types of work content are used in such techniques as Campion's MJDQ and the job analysis procedures of the United States Employment Service.

Different methods of job analysis are needed, depending on the specific use that is made of the information. If the intent is to clarify the duties of people in the organization, to design a performance appraisal system, or to design a training program, highly specific information is needed that can only come through task oriented approaches such as task inventories and critical incidents technique. If the intent is to decide which jobs are similar enough to justify lumping them together for purposes of validating selection procedures, or if the intent is to use the procedure to establish a wage structure, then a worker-oriented technique such as the Position Analysis Questionnaire is of more value.

Jobs are occasionally viewed as static entities that are akin to tools, machinery, and other physical aspects of the organization. Jobs change, however, as a function of changes in technology, culture, work force composition, and organizational structure. Three trends that have great implications for the analysis of jobs are the participation of women in traditionally male jobs, the computerization of work, and the increasing use of teams in organizations.

The dramatic increase in the number of women in traditionally male occupations is one of the factors that may have an important influence on the nature of work activities. Lunneborg (1990), for instance, speculates that the entry of women into male dominated work such as management will change the nature of the work in these fields. Specifically, he argues that as women become

more common in fields such as management, these occupations will become more “humane, less competitive, and less hierarchical” (p. ix). It is also possible, however, that the work will influence those performing it rather than vice versa or that neither jobs nor people will change as more women enter in traditionally male occupations. Only time will tell which of these hypotheses has more merit.

One can only speculate about the impact of women on occupations, but it seems clear that computerization of the workplace and the internet are fundamentally changing the nature of many jobs. Earlier we discussed how the introduction of the typewriter played a role in changing the secretarial job. It is unknown what the next 100 years holds in store for clerical work and the job of secretary as the computer replaces the Rolodex (<http://en.wikipedia.org/wiki/Rolodex>), the typewriter, and other secretarial tools. Some have speculated that the long term effect of technological change is in the direction of narrower, more specialized, and less interesting work. In some cases, however, the introduction of computer technology seems to have upgraded the job of secretary. For instance, as the result of the ease with which word processing on the computer allows writing and rewriting, most faculty in universities type their own manuscripts rather than giving them to their secretaries. This has allowed the secretary to take over other functions involving more responsibility, such as overseeing the budget and supervising other clerical people. In contrast to the job of secretary, Gutek and Larwood (1987) argue that in professional and managerial occupations, the computer tends to be just another tool and has had a relatively minor impact on the fundamental nature of the work.

A third factor to consider is the move toward team-based management in organizations. As more organizations use teams at all levels of the organization, the boundaries between some jobs have become blurred. For instance, in manufacturing it is common to see teams of workers assigned to assemble a product with members of the teams rotating around on different tasks. Cross-functional teams are used increasingly in the development of new products. An important issue that is likely to receive an increasing amount of attention in the future is how to compensate individual employees when work is team-based. One alternative is to base compensation on the skills of the employee rather than on the nature of the job.

Although some critics have argued doing away with traditional job analysis and evaluation, this seems unwise in our opinion. Even in the most rapidly changing organization, there is stability in positions and people are hired to fit the specific KSAOs of the specific positions. Also, legal requirements and maintaining fairness require that the boundaries of each position is defined and delineated. However, there is no doubt that the changes that are occurring in organizations will require new job analysis techniques. For instance, work is increasingly cognitive in nature, but current job analysis methods seem unsophisticated in their attention to cognitive components. The O\*NET is intended to provide a dynamic and constantly changing database that would allow tracking occupational changes associated with technological changes. New job analysis procedures are needed to capture the team component of work, which the field of I/O has largely neglected. Another need is for methods of analyzing and anticipating future changes in work. Such methods are crucial in human resource planning to meet future demands.



## CHAPTER 12: CRITERION DEVELOPMENT, PERFORMANCE APPRAISAL, AND FEEDBACK



## Introduction

Imagine that it's the end of the workday on a Friday at the Megabucks Corporation. Fred is an employee at Megabucks and is looking forward to heading out for a fun filled weekend. Thirty minutes prior to quitting time he is surprised to receive a call telling him to meet with his supervisor. Once there the supervisor makes a few perfunctory comments about the weather and weekend plans and then launches into a discussion of Fred's performance. The supervisor comments on some accomplishments over the last year that are praiseworthy, but then after a long pause states that he is disappointed and concerned about other areas of Fred's performance. Few specifics are identified. Instead the supervisor describes a general unease that Fred just isn't performing as well as he could. When asked by Fred for more specifics, the supervisor says that he thinks that Fred knows where he is falling short and that if he doesn't, that itself is a problem. After some discussion of these vague misgivings, the supervisor goes on to tell Fred that he is pleased to have Fred as an employee and hopes to see improvement in his performance over the next year. He then informs Fred that he will receive a pay raise that is larger than what expected to receive. After shaking hands, Fred leaves totally confused about what his supervisor really thinks of him as an employee and what he should do to improve.

What is wrong with this picture? The readers can identify numerous problems. Not only does the meeting come as a surprise, but it fails in providing Fred with a clear idea of the strengths and weaknesses as an employee and where he needs to improve. Moreover, the appraisal lacks any obvious linkage to rewards. Performance evaluation is a topic that should be familiar. After years of receiving evaluations from teachers, parents, coaches, and friends, the evaluations continue during the work years. To ensure fairness, legality, and effectiveness, and to avoid the confusion depicted in the example, many employers formalize the evaluation process to avoid the problems that Fred encountered. First, they identify the performance criteria that define the behaviors, attitudes, and outcomes that are expected of employees. They then develop instruments to measure the criteria and have used them to evaluate employees. Finally, they provide formal feedback sessions to inform employees of the evaluations, to provide the basis for corrections in deficiencies, and to motivate employees to higher levels of performance. Feedback sessions are also used to explain and justify pay raises, disciplinary actions, promotions, and other decisions. This chapter is concerned with what research reveals about the best ways to identify and measure criteria, evaluate how well employees fulfill these criteria, and provide feedback.

Performance evaluation is essential to the management of people in organizations; but managers and employees probably view performance appraisal and feedback the least favorably of all the human resource management functions, and for good reason. There are numerous examples of performance appraisal systems going wrong and having unfortunate consequences for both employees and their organizations. One example comes from the efforts in U. S. school systems to evaluate teachers and reward their efforts. Standardized test scores of students are used with increasing frequency across the United States to evaluate and reward elementary, middle, and high school teachers. This emphasis on student test scores is a consequence of Federal programs such as U. S. President George W. Bush's "No Child Left Behind" and President Obama's "Race to the Top." In the state of Georgia, teachers and administrators in elementary and middle schools were given cash bonuses based on whether they could meet 70 percent or more of the targets set for student performance on standardized test. One consequence was widespread

cheating by school administrators in Atlanta. Student test forms were changed to ensure that schools met or surpassed targets and would receive monetary rewards. Teachers who fudged the results of their students were rewarded and those who blew the whistle on those who were cheating were often terminated. The message coming from the top officials in the Atlanta schools was that the only indicator of performance that mattered were the standardized test scores and that no excuses or exceptions would be made for failures to achieve targets on these measures. In the end, eleven of 12 teachers and administrators were convicted of racketeering and given stiff prison sentences (Blinder, April 2015).

The many problems with performance appraisals have led some critics to suggest that employers should stop using them (Culbert, 2010). This is an unlikely and unrealistic solution. If formal appraisals ceased to exist, managers would still form opinions about the relative performance of employees. The only difference is that in the absence of any formal system, evaluations would become more arbitrary and unclear. Performance evaluations are subject to numerous problems, but they are inevitable and it is possible to improve them. I/O psychologists have developed a variety of rating techniques, explored the cognitive and social processes involved in the use of these techniques, and have proposed interventions to improve the accuracy and usefulness of evaluations.

There are many specific uses of appraisals (Cleveland, Murphy & Williams, 1989), but most of these fall within three general functions:

1. Appraisals are used for administrative purposes, such as deciding on monetary rewards, transfers, layoffs, and assignments, and for documenting these decisions.
2. They are also used in employee development to counsel, coach, and in other ways improve the performance of individual employees.
3. Finally, they are used as criteria in research, such as in the validation of selection instruments and the evaluation of training programs.

This chapter begins with an examination of what constitutes a good criterion on which to evaluate performance. The discussion is organized around the what, how, and who of appraisals. What is appraised? When and how often? How should organizations go about conducting these appraisals? Who conducts the appraisal? The answers to these questions depend on which of the three functions the appraisal is intended to fulfill. The chapter ends with an examination of some of the issues related to the performance feedback session.

### What Criteria Are Used to Evaluate Performance?

Before getting started, take a look at the following skits from the Colbert and Conan shows. They are admittedly silly but provide humorous examples of how NOT to establish the criteria for performance appraisals and conduct appraisal sessions. Think about what is wrong with the criteria they are using to evaluate performance.

<http://www.cc.com/video-clips/eh7h1y/the-colbert-report-employee-performance-reviews>  
<https://www.youtube.com/watch?v=gYgveD5B-V0>

Performance appraisals are evaluations of employees on the basis of criteria. Schneider and Schmitt (1986) define criteria as "those behaviors and outcomes at work that competent observers can agree constitute necessary standards of excellence to be achieved in order for the individual and the organization to both accomplish their goals" (p. 77). The first step in defining criteria is to identify the goals against which the effectiveness of the organization and its subunits are judged. This is easier said than done given that the various constituencies of an organization are often in conflict over what the organization should maximize. For instance, customers want an inexpensive, high-quality product. Government regulatory agencies want compliance with rules and regulations. Labor unions want high wages, job security, and safe working conditions for the workers. The issue becomes even more complex when one considers the often-conflicting goals of subunits within the organization. Nevertheless, it is a valuable exercise for an organization to set forth what it stands for and what it is attempting to achieve. These values and goals then set the framework for defining the criteria for various subunits and individual jobs.

In Campbell, McCloy, Oppler and Sager's (1993) model of performance criteria, eight general areas of employee performance are identified that they believe serve as the basis for evaluating employees. Not all these components are found in every job. Rather, they serve as components of a broad latent criterion structure on which jobs can be compared.

1. Job-specific task proficiency: these are the core or central tasks that distinguish one job from another. For example, a bus driver drives a bus, a teacher of chemistry lectures on chemistry, and a heart surgeon performs heart surgery.
2. Non-specific task proficiency: these are tasks that cut across various jobs in an occupation or family of jobs and are not specific to any one of the constituent jobs. For example, teachers regardless of their specialty grade papers and attend committee meetings.
3. Written and oral communication task proficiency: this is how well the person in a job communicates to others through speaking and in written form.
4. Demonstrating effort: this is how consistently a person in a job exerts effort on tasks day by day.
5. Maintaining personal discipline: this is the extent to which the person in a job avoids violating rules and immoral behavior.
6. Facilitating peer and team performance: this is the extent to which an employee supports and helps peers and facilitates group functioning.
7. Supervision and leadership: this is how well the employee performs in influencing others through face-to-face communication, goal setting, rewarding and punishing, coaching, and modeling.
8. Management/administration: this is performance of the managerial or administrative role and includes organizing people, articulating goals for the work unit, monitoring progress, tracking and managing expenses, obtaining resources, and serving as a representative of the work unit.

Points to ponder:

1. Consider some of the jobs you have held. Define the ideal criteria and the extent to which the performance appraisals that were used were relevant, contaminated, and deficient.
2. In universities, student ratings of professors at the end of the semester are often the only method of evaluating the teaching performance of professors. What do you think the ideal

criterion would include for teaching performance? What are the potential sources of deficiency, contamination, and relevance in these ratings?

3. Why do organizations so often rely on single measures of performance lacking in relevance when attempting to measure the performance of employees? In pondering this question consider the salesperson who is often evaluated solely on the basis of dollar value of sales to the neglect of other relevant aspects of the performance.

### What Is Evaluated?

The answer to the question "What is evaluated?" depends on the functions that an appraisal serves. Four bases of evaluating employees are traits, competencies, outcomes, and behaviors. Traditionally, the appraisals conducted on employees have emphasized traits such as integrity, conscientiousness, appearance, energy, ambition, etc. Although traits are warranted when they are used as the basis for promotions or placement, the problems with this type of evaluation have been recognized for many years (McGregor, 1957). In using trait-rating scales, supervisors are prone to rating effects such as halo and leniency (discussed later in this chapter). They also provide a poor basis for giving feedback to employees. How, for instance, does a supervisor tell an employee that he or she is a "3" on "conscientiousness"? If an organization must defend an appraisal system against claims of unfair discrimination, a trait system may be hard to legally justify. Closely related to traits are competencies. Employees may be required to acquire certain skills, maintain these skills at a specified level of proficiency, and update these skills with changes in technology or work procedures. In many ways competencies can be seen as similar to traits, but competencies are usually considered more learnable and subject to revision whereas traits are often seen as more fixed and unchangeable.

An alternative to evaluating traits is to evaluate employees on the outcomes of their labor. At first glance, this seems to be the best approach. Why should an employee's attitude or poor work methods matter as long as he or she gets the work done? As reasonable as an emphasis on outcomes appears, it is often difficult to assign responsibility for the outcomes of an individual employee. The more complex and interdependent the tasks, the more difficult it is to assign responsibility. Too often these difficulties are ignored and whatever is easily measurable is used as the performance measure. In the process, important performance factors are ignored at the cost of the relevance of the performance evaluation. Examples of this abound in the literature on failed performance appraisal systems. The use of standardized test scores of students to measure the performance of school teachers is one of the more recent examples.

Focusing solely on the visible and quantifiable elements of performance not only threatens relevance but also can create conflict, as units or people in an organization attempt to achieve personal goals at the cost of overall organizational goals. Telling salespeople that the only thing that counts is the dollar value of their sales might increase the sales of individual salespeople in the short-term, but could adversely affect customer service and cooperation among members of the sales force. Other unintended consequences of an overemphasis on outcomes are illegal and unethical acts. For instance, a large retail chain was accused of cheating customers on car repairs that were unneeded or not done. The scandal resulted in more than 10 million dollars in fines, with incalculable losses in future business. The main culprit appears to have been a performance appraisal system that placed emphasis on the dollar value of repair work performed (Kelly &

Schine, 1992). Similar problems occur in the financial services industry where pressures to meet unrealistically high sales quotas to keep their jobs encourage brokers to engage in illegal and unethical trading practices (Lewis, 1989).

When outcomes in the form of sales revenue are a primary focus of evaluation there is always a risk of employees adopting an "anything goes" strategy. Evidence of this comes from a study of the moral judgment of financial services salespeople (Schwepker & Good, 2004). In responding to scenarios that depict a salesperson under pressure to achieve a sales quota, participants make less moral decisions to the extent that there are negative consequences of failing to meet a sales quota. A survey of financial services salespeople shows a surprising percentage of sales managers stating that they would allow employees to behave unethically if failure to meet the quota cost them monetarily (Schwepker & Good, 2007).

The next approach is the method of choice for many I/O psychologists: the evaluation of behavioral process. In this case, employees are evaluated on what they do to produce outcomes. Salespeople, for example, are evaluated on their courtesy in dealing with clients, their integrity, whether they follow up on customer complaints, or how much they cooperate with peers. This approach also is carried to extremes, however, if the means become the ends and the employee loses sight of final objectives. In the worst cases this engenders a sticking to outdated procedures even as task requirements change. This becomes a greater problem to the extent that the tasks are complex, changing, and there is more than one method of accomplishing the same objective. Rating a productive employee poorly because he or she does not conform to the right procedures is ill advised in many situations. To give a high evaluation to an unproductive employee just because he or she makes all the right moves makes even less sense.

A third approach is to emphasize more stable characteristics of the employee in the form of knowledge, skills, and personality traits. The distinction between using behavior and using a trait is somewhat fuzzy. The primary difference is that the stable characteristics approach assumes that the behaviors reflect an underlying disposition of the employee whereas the behavior approach is more concerned with the means used to produce task outcomes. Employees are evaluated for the knowledge that they have acquired and are periodically tested to assess what they have learned on and off the job. Job skills are also a target for evaluations. The manual and cognitive skills of employees are assessed through observation of their performance on the job or with off-the-job testing. An example is an airplane pilot who is required to undergo occasional simulation testing to evaluate their proficiency in procedures crucial to flying. Employees can improve their knowledge and skills but personality traits are less open to change and are much more controversial as a target of employee evaluation. It is not uncommon for supervisors to evaluate their subordinates on their initiative, honesty, and other traits considered as essential to effective performance of the job. An example of a controversial use of employee characteristics is the decision in the state of Florida to base evaluations and bonuses of school teachers in part on the scores from the standardized SAT and ACT tests taken when the teachers were in high school (Veiga, 2015).

There is evidence that managers are likely to emphasize outcome measures when they are least appropriate, that is, when the tasks are complex, interdependent, and the managers lack expertise (Ouchi & Maguire, 1975). In these conditions managers feel pressure from their superiors to

show evidence of good performance, but it is in these same conditions that the quality of performance information is poorest. Despite the pitfalls, many of the problems in appraisal are avoidable if the appraisal approach fits the intended uses. Even using traits can make sense, if the traits are related to success on the job and they are used to predict future performance (Kavanagh, 1971). If feedback and employee development are the main uses, however, then employers need to use some mix of behavioral process and outcomes. Deciding whether processes or outcomes are emphasized requires a careful study of the jobs and technology. With a relatively simple technology, the preferred approach is to hold employees accountable for the products of their labor. In this case, the evaluation of outcomes is warranted. In complex situations an emphasis on behavioral process is often warranted. The advantages become even more apparent where the products of employee efforts are far removed from individual actions and the success of each employee depends on what fellow employees do.

An example of how a teacher could be evaluated on traits, outcomes, and behaviors is provided below:

<b>Basis for evaluation</b>	<b>Possible measures</b>
<b>Outcomes</b>	
	Number of students who graduate
	Student scores on standardized tests.
	Student teacher evaluations
	Success of students in finding jobs.
<b>Behaviors</b>	
	Cooperation with other teachers and principal.
	Interactions with students.
	Communications with parents.
	Record keeping.
<b>Stable characteristics</b>	
Knowledge	Scores on tests in teacher subject area.
Skills	Proficiency in lecturing based on observation.
Personality	Honesty, dependability, dedication

Table 12.1: Outcomes, Behaviors, and Stable Characteristics as Bases for Performance Evaluation and Illustrations from Teacher Performance

Points to ponder:

1. Consider the evaluation of professors on their teaching performance? Provide examples of behavioral processes, outcomes, and traits that you could use to evaluate teaching performance.
2. We often think that the best measure of performance is the outcome of whatever an employee does in the performance of his or her job. Why is the use of only outcomes somewhat dangerous in an organization? What are the potential problems that could arise from paying attention to only outcomes?

3. Some research shows that when the task is complex and interdependent managers are more likely to rely on outcomes rather than behavioral processes in evaluating performance. Why do you think this occurs? Why is this reliance on outcomes less appropriate to the task?

### How Is Performance Measured?

Once a decision is made on what to evaluate, attention shifts to the best method to use. One can evaluate criteria on the extent to which they are relevant, reliable, fair, sensitive to performance differences, and practical.

### Evaluating performance appraisal measures

The relevance of a performance appraisal measure is the extent that it reflects important criteria of performance. Criteria are theoretical constructs, and performance appraisals are attempts to measure these constructs. Consequently, evaluating a performance appraisal measure is essentially a process of construct validation (go back to the research methods chapter for a discussion of construct validation). Relevance of a measure is essentially equivalent to construct validity, and is illustrated in figure 12.1 as the degree of overlap between the measure and the ideal criteria.

The ideal criteria (sometimes called the ultimate criteria) are all the important goals that the organization wishes the employee to achieve in his or her work. The ideal criteria for salespeople includes maximizing revenue through sales, following policies, providing service to existing customers, and prospecting for new clients. In the example, the performance evaluation is influenced by three of the factors reflected in the ideal criterion and the extent to which each shapes the evaluation defines the relevance of the performance evaluation. One of the factors (prospecting for new clients) is left out of the performance evaluation. To the extent that a measure fails to reflect important dimensions of the ideal criterion, it is deficient. Physical attractiveness is irrelevant to performance but prettier and more handsome salespeople tend to get higher evaluations regardless of their performance on the other dimensions. The extent of influence of physical attractiveness on the performance evaluation defines the area of criterion contamination. Relevance can also suffer because of opportunity biases in the form of information that is beyond the control of the employees. Imagine a salesperson who is evaluated on the number of lawnmower sales but who is assigned a territory that includes mostly apartment complexes. If this salesperson were evaluated lower than another salesperson that has mainly residential customers, then the performance measure would suffer from an opportunity bias. In addition to relevance, performance appraisals should be reliable, fair, sensitive, and practical. Reliability is discussed in several chapters of this text. As already mentioned, reliability is measured in terms of test-retest, internal consistency, equivalent form, and inter-rater agreement. In deciding which approach to take, one must consider how the appraisal measure is used and assumptions underlying performance. If the expectation is that performance is stable over time, a test-retest procedure is needed that taps the consistency of appraisals over time. If the appraisal instrument consists of multiple items and a sum or average of these items constitutes the evaluation, an internal consistency approach is needed. Finally, if we have different appraisal forms and use these as if they were equivalent, an equivalent forms approach is needed. The approach that is most often used in evaluating appraisals is the computation of inter-rater



reliability. Here it is assumed that ratings are consistent across raters. The index of reliability is the correlation between one appraiser's evaluations with the evaluations of other appraisers. In some cases, more than one of these approaches to assessing reliability is recommended.

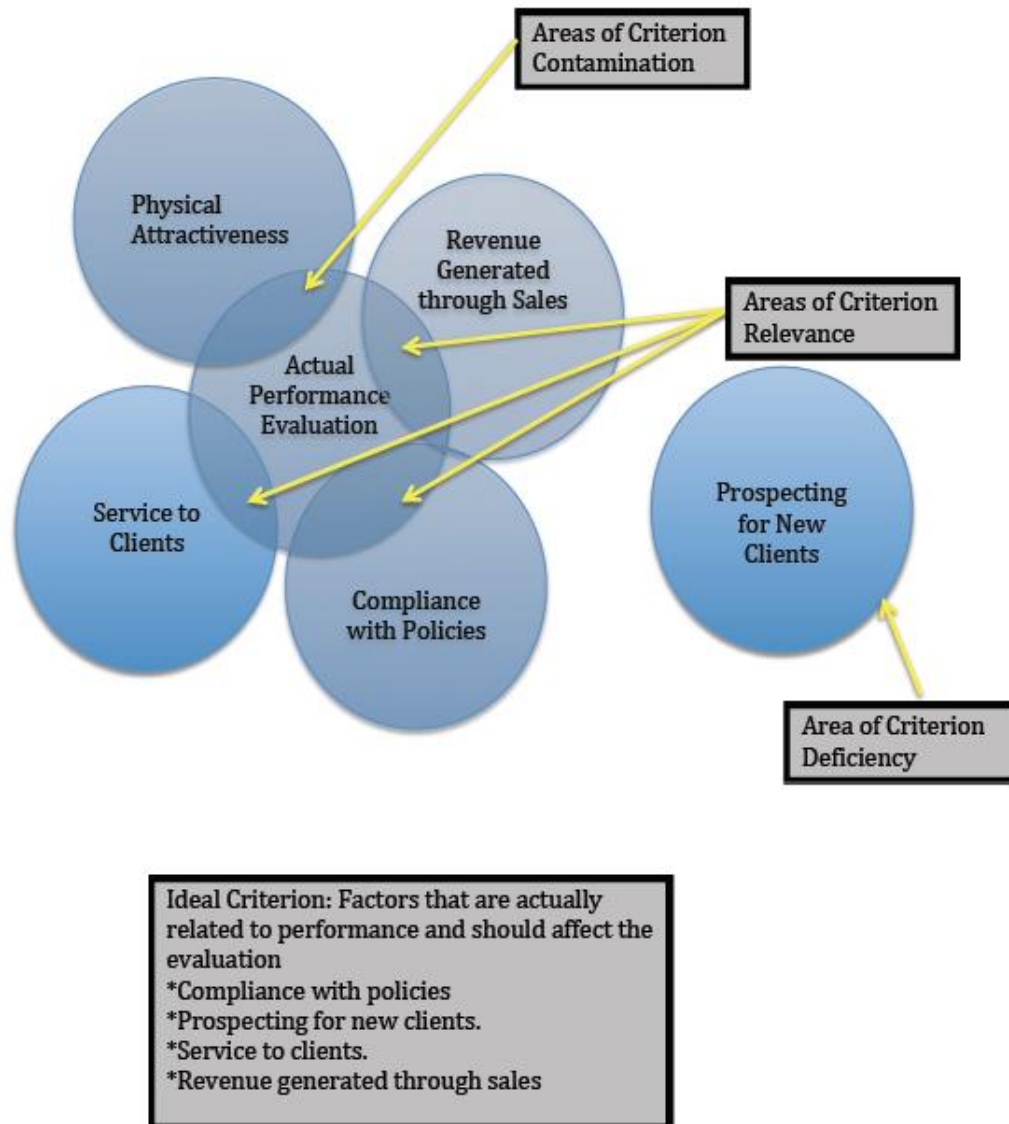


Figure 12.1: Illustration of Criterion Relevance, Deficiency, and Contamination

It is usually important that appraisal measures possess sensitivity. This is the ability of the appraisal process to distinguish among employees. If everyone tends to get the same appraisal, then the evaluation is unlikely to have value in making personnel decisions on pay raises, layoffs, and other personnel matters. Unfortunately, leniency is a common problem in performance evaluations, and much of the research has focused on devising instruments that are less vulnerable to this bias. Another important requirement for appraisals is that they are fair.

This means that they not only are free of bias against women, minorities, and other factors irrelevant to performance, but that they also are perceived as fair. Allowing appraisers to participate in the design of the system is one way of avoiding the feelings of inequity that so often plague performance appraisal. The final basis for evaluating performance appraisals is practicality. Despite meeting all the requirements, appraisal procedures are still useless if they are unworkable. Patricia Cain Smith (1976) defines practical appraisals as those that are available, plausible, and acceptable (p. 746). The author would add reasonable cost to this list.

Two alternatives to performance measurement are distinguishable: objective and subjective (judgmental) measures of performance.

### Objective measures

An objective performance measure is defined as one that is free of human judgment and relies on “hard” indicators of performance such as number of widgets produced, time taken to produce a widget, or dollar value of widgets produced. Using objective measures of behavioral process and outcomes often is touted as the best approach. A typist's performance is measured with the number of lines typed and the number of errors made. A salesperson's performance is measured with dollar value of sales. A forester is evaluated on the number of trees cut.



Despite the hard numbers that objective measures provide, this approach falls short on several of the attributes of good appraisals. Objectivity of measurement does not necessarily ensure reliability (Klemmer & Lockhead, 1962; Rothe, 1978). Objective measurement of performance is not practical in complex and interdependent jobs. In these types of jobs finding a “hard” measure of the outcomes of worker efforts is often expensive and time consuming. Also, objective measures often lack relevance because of deficiency, opportunity bias, and contamination.

An overemphasis on narrow dimensions that can be measured objectively coupled with a neglect of dimensions that are harder to measure can have unintended negative consequences. For instance, in hospitals appraisal systems that emphasize the number of patients seen rather than quality of care can lead to shortcuts in patient care and tragic consequences (Eijkenaar, Emmert, Scheppach, & Schöffski, 2013). Another example comes from the common emphasis on speed and quantity in monitoring the performance of call center employees. Rather than achieving the intended objective of providing a high level of customer service, service representatives may end their phone conversations quickly in an attempt to boost the number of customers and cut the time spent. Focusing on objective measures of productivity and efficiency also can discourage employees from taking the risks that they must take to come up with new ways of doing things. An overemphasis on a few objective measures such as cost, speed, or quantity can stifle innovation by punishing those who take risks. In addition to the potential for negative consequences, there is little evidence that coupling pay-for-performance with the monitoring of objective performance improves performance. This is shown in research with CEOs (Hou, Priem & Goranova, 2014), health-care providers (James, 2012; Rosenthal & Frank, 2005; Ryan, Sutton & Doran, 2014), call center employees (Jeske & Santuzzi, 2015), teachers (Yuan, Le, McCaffrey, Marsh, Hamilton, Stecher, & Springer, 2013), college recruiters (Coutts, 2011; Kutz, 2010).

Although objective measures of performance at first glance appear fairer than subjective evaluations, the process of collecting objective data can create problems. Technological advances make it possible for organizations to gather large amounts of information in some jobs. Invasion of privacy becomes an issue as this technology is increasingly used in the surveillance of employees. An example is the "active badge." These clip-on IDs contain computer chips that transmit infrared signals to sensors placed around the workplace, allowing continuous monitoring of the location of employees (Harper, Lamming, & Newman, 1992). A technology that is widely used is computer monitoring of the efficiency and accuracy of keyboard operators. Chalykoff and Kochan (1989) describe a system used in a collection agency that is part of the U.S. Internal Revenue Service. Supervisors monitored employees' work-related calls and evaluated their handling of the conversations. Additionally, there is computer tracking of the performance of average time spent talking, number of calls completed, and number of calls attempted. Contrary to what one might expect, computer monitoring does not reduce employee satisfaction and morale. A more recent study suggests that how employees frame the monitoring is an important determinant of their attitudinal reactions (Wells, Moorman & Werner, 2008). To the extent that employees perceive that monitoring is used to develop employees, they are more positive toward their jobs, the organization, and the monitoring system.

What are the effects of electronic performance monitoring on performance? Laboratory experiments have compared the performance of participants who are monitored and those who are not monitored. The findings tend to show that monitoring increases the performance on simple tasks but hinders performance on complex tasks (Bhave, 2014). In one of the few field studies of electronic performance monitoring, more frequent use of electronic monitoring in a call center was associated with higher task performance and more organizational citizenship behavior (Bhave, 2014). Despite the evidence that electronic performance monitoring does not harm satisfaction and may even boost performance, some critics would still argue, however, that such an obtrusive method is inherently unethical (Alder, 1995; Hodson, Englander & Englander, 1999) and places employees under undue stress when there is a lack of control (Holman, 2002).

and the monitoring is intense. Still, U. S. court decisions and laws allow employers to monitor employees if they are using equipment that is owned by the employer (<http://www.hrexaminer.com/employee-privacy-what-can-employers-monitor/>). The debate is likely to continue as more organizations use computer technologies for surveillance.

#### Points to ponder

1. What constitutes an objective in contrast to a subjective measure of performance?
2. The more complex the job, the more we have to use subjective measures of performance rather than rely on objective measures? Why is this case? Provide examples of complex and simply jobs that you have observed.
3. Do you believe that electronic performance monitoring is unethical? Why or why not?
4. Would you want to work where you are subjected to electronic performance monitoring?

#### Evaluating employees on graphic rating scales

Because of the problems of using objective measures, organizations rely mainly on judgments of supervisors in appraising performance (Lent, Aurbach, & Levin, 1971). The most common rating scale used in performance appraisal is the graphic rating scale (see figure 12.2).

If the readers ever have been asked, "on a scale of 1 to N how would you rate X?" they used a graphic rating scale. Anchors can come in a variety of forms, but the most common types indicate whether the ratee possesses a high to low amount of the dimension, is poor to excellent, or is far below average to far above average. Very little guidance is usually given on how the rater is to judge where the person is on the scale. The result is that raters must struggle with what particular points on a scale mean. One rater's "2" on a 1 to 5 scale might be another person's "3" or "4." The ambiguities in interpreting the scale steps on a graphic scale are blamed for a variety of rating effects, including halo, leniency, contrast, and so on. Also, if raters have difficulty understanding the scale, then they are likely to have difficulty conveying feedback to the persons rated (i.e., ratees) on the dimension in question. Imagine the problems one might encounter in explaining to employees that they are a "3" on dependability and a "1" on initiative.

Much of the research on performance appraisal ratings consists of a search for alternatives to graphic rating scales. The review that follows first considers some of the common rating effects that lessen the value of judgmental measures of performance. Next there is a consideration of alternative rating methods that are used to improve accuracy.

<b>Absolute:</b> Scale requires the rater to directly evaluate the rate on the amount, frequency, or quality of a trait, behavior, outcome, or competency using a scale anchored with evaluative levels.					
	Very Poor	Poor	Moderate	Good	Very Good
Knowledge	1	2	3	4	5
Quality	1	2	3	4	5
Quantity	1	2	3	4	5
Initiative	1	2	3	4	5
How frequently does the employee refer to customers by name?					
	Never	Seldom	Often	Almost Always	Always
	1	2	3	4	5
How much initiative does the employee demonstrate on the job?					
	None	Very little	Moderate amount	Large amount	Very large amount
	1	2	3	4	5

<b>Comparative Rating Scale:</b> Requires rater to evaluate the employee on a scale that compares that employee to other employees.					
	Much worse	Worse	The same	Better than	Much better
Knowledge	1	2	3	4	5
Quality	1	2	3	4	5
Quantity	1	2	3	4	5
Initiative	1	2	3	4	5

<b>Expectation Scale:</b> Requires rater to evaluate the employee performance relative to that employee's expected level of performance.					
	Well below	Below	Meets	Exceeds	Greatly exceeds
Knowledge	1	2	3	4	5
Quality	1	2	3	4	5
Quantity	1	2	3	4	5
Initiative	1	2	3	4	5

Table 12.2: Examples of Absolute, Comparative, and Expectation-Based Graphic Rating Scales.

Rating effects and biases.

The research on judgmental measures of performance reveals several systematic tendencies to rate in a certain direction. These tendencies are often called rating biases, a term that implies that they are always sources of error. However, halo, leniency, and other similar tendencies are not always wrong. Consequently, they are called rating effects to distinguish them from rating error and accuracy.

**\*Halo.** The most common of the rating effects is halo (Cooper, 1981). Halo occurs when the rater tends to give the same level of rating across all dimensions. Figure 12.2 provides an example. Each person receives a different evaluation, but there is no differentiation among the dimensions in the rating of that person. Harriet is rated negatively on integrity, knowledge, initiative, motivation, and dedication, whereas Charlie is rated in the middle on all dimensions and Jim receives 2s on the same dimensions. The rater distinguishes among the three persons who are evaluated but fails to distinguish among the dimensions in the rating of each person.

Although halo occurs at any point along the scale, the most frequent tendency is for people to give uniformly positive ratings across dimensions (therefore the term, "halo"). For example, an

employee who is seen as having a good attitude is evaluated positively on not only attitude but also other dimensions, such as quantity and quality of performance. Negative halo, in which an individual receives the same negative rating across all dimensions, is also possible (also called the horns effect). An example is an instructor who receives exactly the same negative rating on knowledge of the subject matter, enthusiasm in lecturing, availability to students, and fairness of tests. Halo can reflect an error in that the rater incorrectly generalizes from performance on one dimension to other dimensions rather than carefully considering each separate aspect of performance. Halo can also reflect a true correlation among the various dimensions. As a consequence, some have argued for distinguishing "true halo" from "halo error" (Cooper, 1981).

		Very Poor 1	2	3	4	Very Good 5
<b>Harriet</b>						
	Integrity	✓				
	Knowledge	✓				
	Initiative	✓				
	Motivation	✓				
	Dedication	✓				
<b>Charlie</b>						
	Integrity			✓		
	Knowledge			✓		
	Initiative			✓		
	Motivation			✓		
	Dedication			✓		
<b>Jim</b>						
	Integrity		✓			
	Knowledge		✓			
	Initiative		✓			
	Motivation		✓			
	Dedication		✓			

Figure 12.2: Illustration of Rating Halo

\*Central tendency, severity, and leniency. Another tendency is for a rater to use only part of the scale in evaluating different persons. Central tendency rating bias occurs when raters use the middle of the rating scale in evaluating each person. This could reflect a conservative strategy in which a rater attempts to avoid mistakes by giving everyone an average appraisal. Severity rating bias occurs when a rater gives mainly negative evaluations, such as an instructor who grades all students down in an effort to appear tough. The more common tendency is leniency rating bias, in which raters assign all subordinates to the positive end of the scale. There are a variety of reasons that leniency occurs. For instance, an easy instructor might give all A's because his grading standards are easy, he wants to receive good teacher ratings from students, or he likes his students. As in the case of halo, one should not necessarily assume that these rating tendencies are errors. A teacher could show leniency because the students in a class actually deserve good

grades. Perhaps the most serious problem with leniency is that it prevents differentiation among employees. This is a serious problem when the appraisals are used to distribute rewards and other resources on the basis of individual performance.

In showing central tendency, severity or leniency the rater tends to use the same point on the rating scale across several employees on a single dimension. In the case of leniency, the rater tends to use the positive end of the rating scale in rating employees on a dimension, whereas in severity the rater tends to use the negative end of the rating scale. In central tendency, the rater tends to use the middle of the scale.

Central tendency, severity, and leniency occur with and without a halo bias. Tables 12.3, 12.4, 12.5, and 12.6 provide examples of several possible combinations.

		Very Poor 1	2	3	4	Very Good 5
<b>Harriet</b>						
	Integrity					✓
	Knowledge				✓	
	Initiative				✓	
	Motivation				✓	
	Dedication					✓
<b>Charlie</b>						
	Integrity					✓
	Knowledge					✓
	Initiative					✓
	Motivation					✓
	Dedication					✓
<b>Jim</b>						
	Integrity				✓	
	Knowledge				✓	
	Initiative				✓	
	Motivation				✓	
	Dedication				✓	

Figure 12.3: Illustration of Rating Leniency Combined with Halo

Figure 12.3 illustrates both halo and leniency. The rater does not show much differentiation among the five dimensions in the rating of each employee (halo). The rater also tends to rate all three employees positively (leniency).

		Very Poor 1	2	3	4	Very Good 5
<b>Harriet</b>						
	Integrity		✓			
	Knowledge		✓			
	Initiative		✓			
	Motivation	✓				
	Dedication	✓				
<b>Charlie</b>						
	Integrity	✓				
	Knowledge	✓				
	Initiative		✓			
	Motivation		✓			
	Dedication		✓			
<b>Jim</b>						
	Integrity	✓				
	Knowledge	✓				
	Initiative	✓				
	Motivation	✓				
	Dedication	✓				

Figure 12.4: Illustration of Rating Severity  
Combined with Halo

In figure 12.4, the rater shows severity and halo. The rater tends to not differentiate among the five dimensions in the rating of the three employees (halo) and tends to rate them all on the low end of the scale (severity).

		Very Poor 1	2	3	4	Very Good 5
<b>Harriet</b>						
	Integrity		✓			
	Knowledge			✓		
	Initiative			✓		
	Motivation			✓		
	Dedication				✓	
<b>Charlie</b>						
	Integrity			✓		
	Knowledge			✓		
	Initiative			✓		
	Motivation			✓		
	Dedication			✓		
<b>Jim</b>						
	Integrity			✓		
	Knowledge			✓		
	Initiative			✓		
	Motivation				✓	
	Dedication			✓		

Figure 12.5: Illustration of Central Tendency  
Bias Combined with Halo

In figure 12.5, the rater is showing central tendency in rating all three employees and halo in the rating of two of the three employees. The rater tends to use the middle of the scale for all three employees and thus show a central tendency bias.



		Very Poor 1	2	3	4	Very Good 5
<b>Harriet</b>						
	Integrity					✓
	Knowledge				✓	
	Initiative			✓		
	Motivation				✓	
	Dedication		✓			
<b>Charlie</b>						
	Integrity	✓				
	Knowledge					✓
	Initiative			✓		
	Motivation	✓				
	Dedication			✓		
<b>Jim</b>						
	Integrity					✓
	Knowledge			✓		
	Initiative			✓		
	Motivation				✓	
	Dedication					✓

Figure 12:6: Illustration of Ratings with No Halo, Leniency, Severity or Central Tendency Bias

In the ratings in figure 12.6 the rater shows neither halo nor leniency/severity/central tendency biases. The rater differentiates among the five dimensions in rating each employee and uses the entire scale.

**\*Context Effects.** This refers to the effect that evaluations of members of a group have on the ratings of an individual member of that group. Assume that two employees both achieve the same level of performance. One is in a group in which the level of performance of coworkers is awful. The other is in a group of high performers. A contrast rating bias occurs for the employee in the low-performing group if that person is rated higher when in the context of the other employees than when rated alone. Likewise, a contrast effect occurs in the evaluation of the employee in the high-performing group if that employee is rated lower when in the context of the other employees than when rated alone.

Another type of context effect is assimilation rating bias. In this case, the rating is drawn toward the levels exhibited by others. An example is an employee who receives more positive evaluations when rated in the context of a group of star performers than when rated alone. Assimilation effects are more likely when the person rated is fairly close to the level of performance of others in the situation. Contrast effects are more likely when large differences are found between the person rated and others in the situation.

**\*Order Effects.** Information about performance seldom comes all at once but usually becomes available over time. The order in which information appears influences the final evaluation. A commonly observed effect is the primacy rating bias, in which the first information about a person influences the final evaluation more than information appearing later. Consider a student who on the first day of class comes late and then falls asleep in class. That poor soul may never redeem himself in the eyes of the instructor. On the other hand, students who on the first day listen attentively and answer the instructor's questions may evoke a warm feeling that lasts the

rest of the semester. The old adage "you have one time to make a good first impression," is true at work as well in the classroom.

It is also possible to find recency effects rating bias in which the last information on the person influences final ratings more than information appearing earlier. The research suggests that primacy effects are more likely when one overall evaluation is made after observing information on the employee, whereas recency effects are more likely when the rater evaluates the employee on each item of information as it occurs (Farr, 1973). Given that performance evaluations in organizations usually consist of one summary evaluation, primacy seems more likely than recency.

\*Negativity Effects. A type of rating effect observed in a wide range of tasks is the tendency to place more weight on negative information than on positive or neutral information (Bolster & Springbett, 1961). Performance appraisals can become a search for negative evidence rather than an attempt to make the most accurate evaluation based on representative samples of performances. To counteract this tendency, it is frequently suggested that supervisors make a special effort to observe the good as well as the bad performances of their subordinates.

\* Similar-to-me effects. Still another type of effect occurs when the rater evaluates the other person on the basis of the similarity of that person to the rater (Wexley, Alexander, Greenawalt, & Couch, 1980). Consider, as an example, managers who give higher ratings to subordinates who share their political beliefs, alma mater, and hometown.

\* Physical attractiveness. The physical appearance of the employee seems a questionable factor on which to base the evaluation of performance in most cases. Nevertheless, research shows that persons who are physically unattractive receive lower ratings than those who are attractive (Stone, Stone, & Dipboye, 1992). A recent example of physical attractiveness bias was the firing of a salesperson at a major department store for not wearing makeup (<http://www.theguardian.com/law/2011/jul/01/harrods-dress-code-sales-assistant>). In this case, the employee was reported to be a highly effective performer, but her lack of makeup violated the norms of the organization.

Although the findings of most studies show that attractive people receive higher evaluations, there is evidence that attractive women are at a disadvantage in some situations. The findings of one study demonstrate a "beauty is beastly" effect (Heilman & Stopeck, 1985). Specifically, an unattractive woman receives higher performance ratings than an attractive woman when she is in a traditionally male job, but an attractive woman receives higher ratings when she is in a traditionally female job. According to one explanation, attractiveness increases the influence of sex stereotypes so that an attractive woman is seen as possessing stereotypic feminine traits to a greater extent than an unattractive woman. One recent case that received a lot of national attention was a case that went all the way to a state supreme court ([http://www.huffingtonpost.com/2013/01/10/melissa-nelson-dental-assistant-fired-hot\\_n\\_2444222.html](http://www.huffingtonpost.com/2013/01/10/melissa-nelson-dental-assistant-fired-hot_n_2444222.html)). In the case, a dentist had an affair with his dental assistant and then fired her. The dentist argued that he fired her because "she was too attractive" and her looks were a distraction and a temptation. She filed suit for sexual discrimination, but the supreme court of the state in this case found in favor of the dentist! This case seems unlikely to set a precedent for

future court decisions, but it brings attention to the continuing issue of attractiveness bias. In another story a woman filed a lawsuit after she was fired from a New York financial services company for apparently for being too attractive (<http://nypost.com/2010/06/03/woman-says-she-was-fired-from-citibank-for-being-too-hot-2/>).

\* Personal liking. Somewhat related to the similar-to-me bias and attractiveness bias is a tendency for the evaluator's personal liking for the person to influence evaluations of that individual. Those responsible for appraising performance should rise above their personal feelings. Still, it is not uncommon to hear supervisors express something along these lines: The (she) is performing just fine, but there is something about him (her) that I just don't like." Empirical evidence that raters' liking for a ratee can reduce accuracy comes from research showing student bias in the evaluations of teachers as the result of personal liking (Cardy & Dobbins, 1986; Dobbins & Russell, 1986). One study found that students are more accurate in judging the performance of teachers when the teachers are equally likable than when the teachers differ in likability (Cardy & Dobbins, 1986).

\* Demographic effects. Also related to the similar-to-me effect is the tendency to rate people of a particular age, gender, or race higher or lower than people in other groups. These effects can violate civil rights legislation protecting the employment rights of older employees (those above 40), women, and minorities.

\*\* Age. A consistent finding is an age bias in performance appraisal which older workers are rated lower than younger workers. That this is a problem is possibly reflected in the dramatic rise in the number of age discrimination suits in the U.S. over the last decade (<http://www.eeoc.gov/eeoc/statistics/enforcement/adea.cfm>). The extent to which this is a problem varies across organizations and occupations. For instance, information technology (IT) is traditionally thought of as a young person's industry, and older IT employees are more likely to be unemployed than younger workers (Harbert, 2011). There is evidence, however, that the negative perceptions of older employees extend beyond specific industries. Lyons et al (2014) conclude from their review that "Older adults are stereotyped as warm, kind, and caring, but also as incompetent (Cuddy et al., 2005), unattractive (Kite and Johnson, 1988; Kite et al., 2005), poorer performers, less flexible, more resistant to change, lower in ability to learn new skills, disinterested in training, and prone to illness and accidents (Finkelstein et al., 1995). Older adults are seen as costlier to hire (Posthuma and Campion, 2009) and are less preferred for positions in dynamic companies than their younger peers (Diekmann and Hirnisey, 2007)" (p. 1010). In support of age biases in performance appraisals, there are survey findings showing that supervisors evaluate older employees less positively and that these effects are more pronounced for nonprofessional than professional employees (Waldman & Avolio, 1986). Interestingly, the same study reports that the older employees are more productive (as measured by objective indicators) than younger employees, regardless of whether they were in professional or nonprofessional occupations. More recent meta-analyses confirm that older persons are evaluated slightly lower on their performance than younger persons (Bel, Reiss, Rudolph & Baltes, 2011; Gordon & Arvey, 2004).

\*\*Sex bias. Women in traditionally male roles can be at a disadvantage in the appraisals of their performance, but research so far has been neither clear nor consistent in demonstrating a sex bias

in performance appraisal in which women receive lower ratings. The findings of one meta-analysis of the field research shows little evidence of a sex bias, but did reveal a tendency for a bias against women when only men served as raters (Bowen, Swim & Jacobs, 2000). Also, appraisal measures that evoked masculine stereotypes were associated with more bias against women and measures that evoked feminine stereotypes were associated with more bias in favor of women. Measures that were neutral with regard to male and female stereotypes did not demonstrate sex biases.

A more recent meta-analysis reports that men and women do not differ on their performance evaluations, but they do differ in the rewards they receive (Joshi, Son & Roh, 2015). Across a wide range of occupations men were more likely than women to receive rewards in the form of salary, bonuses and promotions. The effect size indicated that the effect of sex on rewards was 14 times the effect of sex on performance evaluations. As the job increased in complexity, the effects of sex on both rewards and performance increased such that men were more likely to receive higher evaluations and rewards on complex than less complex jobs. Another moderator was the percentage of men in the occupation. The more men in an occupation, the larger the gap between men and women on performance evaluations and rewards.

These findings are consistent with evidence that women are not being promoted to the highest levels at the same rates as white men. The U.S. Department of Labor released a report in the 1990s showing that in nine large corporations the careers of minorities and women appeared to reach a plateau lower than that of the typical white male (Department of Labor, 1995). This was called the "glass ceiling" and could reflect a variety of factors other than performance appraisals, including differences in task assignments, training opportunities, and mentoring relationships (Barreto, Ryan & Schmitt, 2009; Bruckmüller, Ryan, Rink, & Haslam, 2014). To eliminate barriers to the upward promotion of women, some corporations have taken a careful look at their appraisal procedures in the attempt to weed out subtle and not-so-subtle sources of sexism. One company asked a panel of senior executive women to look at the wording contained in appraisal procedures (Lublin, 1991). The committee recommended that the definitions attached to the leadership dimension on the appraisal form be changed from "intense desire to win," which seemed stereotypically male, to "intense desire to succeed," which seemed more gender neutral.

**\*\*Ethnic bias.** A consistent finding is that an ethnic bias in performance appraisal in which black employees tend to receive lower ratings than white employees (Kraiger & Ford, 1985; Sackett & DuBois, 1991; Waldman & Avolio, 1991). Researchers in one study found that black raters rated whites lower than they rated blacks, whereas white raters rated blacks lower than whites (Kraiger & Ford, 1985). In this study, blacks received the lowest evaluation where they represented a small proportion of the work force. Subsequent research has failed to replicate these results, however (Sackett & DuBois, 1991; Waldman & Avolio, 1991). Subsequent meta-analyses have shown that black employees receive lower performance evaluation ratings than white employees (McKay & McDaniel, 2006; Roth, Huffcutt & Bobko, 2003). The difference in ratings is about one-fourth of a standard deviation, and somewhat larger bias against blacks is found on supervisory ratings than for objective criteria (e.g., number of absences from work). Another issue that remains unresolved is whether differences in appraisals represent real differences in performance or unfair discrimination. It may be that the tendency for black employees to receive

lower ratings not only reflects supervisory prejudice but also reflects employee deficiencies in knowledge, skills, or abilities that stem from past educational disadvantages.

**\*\*Is demographic bias still an issue?** There is continuing pressure in the U. S. to eliminate demographic bias in performance appraisals. Consequently, effects found in some studies may soon become obsolete as stereotypes diminish and organizations are held more accountable. Based on a qualitative review of the data, Landy (2010) concludes that demographic bias ceased being an issue several decades ago. “Thirty years ago, Jim Farr and I suggested that with the data available to us, we saw no substantial evidence of bias in performance ratings related to demographic characteristics of ratees or raters. Based on a review of hundreds of studies, meta-analyses, regression analyses controlling variously for ability, education, experience, and organizational level and job type, and designs incorporating repeated measures as a control for true performance levels, I find no reason to change that conclusion” (p. 227).

The author sincerely hopes that these conclusions are warranted, but there is a problem with concluding at this point that demographic bias is no longer an issue. Organizations willing to release appraisal ratings to researchers are probably those that are doing the most to eliminate discrimination. A large study in the U.S. Army (Pulakos, White, Oppler, & Borman, 1989), for example, found little evidence that black, Hispanic, and women soldiers received lower ratings from their officers. The U. S. Armed Forces serve as models for what organizations can do to eliminate bias in appraisals and other human resource practices. Whether the organizations represented in the current research on demographic bias in performance appraisals is representative or atypical remains an open question. Another problem is that the quantitative reviews of age, sex, and ethnic differences show that there are differences in evaluations. The differences reported in these analyses are small but when deciding among employees on promotions and other rewards, biases that may appear tiny and insignificant can have large consequences (Martell & Emrich, 2012). One can only hope that there is a genuine trend in the direction of less discrimination.

**Rating error vs. rating effect.** Although rating effects such as halo and leniency are frequently considered equivalent to rating errors, this is not always the case. An error presumes some standard that we use for comparison (Gordon, 1970). Thus, if we had a supervisor judge the typing speed of a secretary we could use as a standard the actual typing speed of the secretary to measure error in the judgment. The actual typing speed would be the true score and taking the difference between the estimated and the true score would measure the degree of error committed in estimating speed.

Somewhat more controversial is the attempt to measure error in the appraisal of performance on subjective dimensions. For instance, researchers in an experiment had students watch videotaped lectures and evaluate the lecturer's performance on two scales: (1) the frequency with which each of 12 behaviors occurred in the lectures (e.g., uses blackboard), and (2) the performance of the lecturers on each of eight dimensions that included poise, interest, and thoroughness of preparation (Murphy, Garcia, Kerkar, Martin, & Balzer, 1982). For each videotape, the researchers obtained true scores for the two types of ratings by taking the mean rating of experts on several performance dimensions. The results revealed that subjects who were accurate in estimating the frequency of the behaviors were also accurate in appraising performance. Once

the true scores of a taped performance are computed in this manner, researchers can manipulate in experiments factors believed to influence the accuracy of evaluations such as the order of presentation, delay between stimulus presentation and rating, or type of rating scale (Borman, 1979a; Borman, 1979b; Murphy & Balzer, 1986; Murphy, Garcia, Kerkar, Martin, & Balzer, 1982).

Although measures of rating accuracy are useful in theoretical explorations of rating behavior, such research is difficult to conduct in organizational settings. It is difficult and often impossible to obtain true scores of performance for people in actual jobs in an organization. Consequently, researchers in organizational settings often must rely on traditional rating effect measures such as halo and leniency when they explore performance appraisal in field settings.

Points to ponder:

1. Provide examples of how each of the rating biases could occur in the student evaluation of the teaching performance of faculty.
2. Distinguish between a rating bias and a rating error. Under what conditions are biases also errors and under what conditions might biases occur that are not errors?
3. Do you think true halo is a frequent occurrence? Why or why not?
4. Performance ratings in many settings tend to exhibit leniency biases more often than severity biases. Why do you think leniency is the more frequent bias?

Cognitive structures and processes in an evaluator's ratings of an employee.

The discussion so far has had a decidedly practical slant. Improving judgmental appraisals will require, however, a better understanding of why people form the appraisals they do. To understand the dynamics involved, I/O psychologists in recent years have developed theories of the appraisal process. Figure 12.7 specifies the essential steps involved in performance appraisals (DeNisi, Cafferty, & Meglino, 1984, p. 362):

1. Behaviors and outcomes of the employee along with prior expectations that the rater has for employee.
2. The rater's observation of the behavior and outcomes.
3. The rater's perceptions of the behavior and outcomes.
4. The rater's encoding of information and the formation of a cognitive representation (i.e., some mental picture) of the employee.
5. The rater's storage of this representation in memory.
6. The rater's retrieval of the stored information at the time of the formal evaluation.
7. The rater's reconsideration and integration of the retrieved information with other items of information available.
8. The rater's formal evaluation of the employee using a suitable rating instrument.

Throughout the process depicted in figure 12.7, raters attempt to reduce the information to make it more manageable and meaningful. The processes involved are often unconscious, unintentional, and automatic. In other words, raters often form impressions and leap to

conclusions without full awareness of the bases for their snap judgments. Increasing rater awareness of how the processes can potentially shape their judgments is a first step in improving the process.

Perception is the first step in the process in which the rater senses the behavior and outcomes of the employee. Auditory and visual information is held for a few seconds in the sensory store. This information is lost unless it is encoded and stored. Problems occur in situations in which there is too much information or where there is a lack of access to employee behavior and outcomes. Also, prior expectations can bias rater's attention so that information. This bias can cut both ways. Depending on the circumstances, the rater could fail to attend to information that is inconsistent with prior expectations or do just the opposite and pay more attention to this information. Rater mood also can affect the initial registry of information. A rater in a positive mood is more open to positive behavior and outcomes whereas a negative mood could bias perceptions in the direction of attending to negative information.

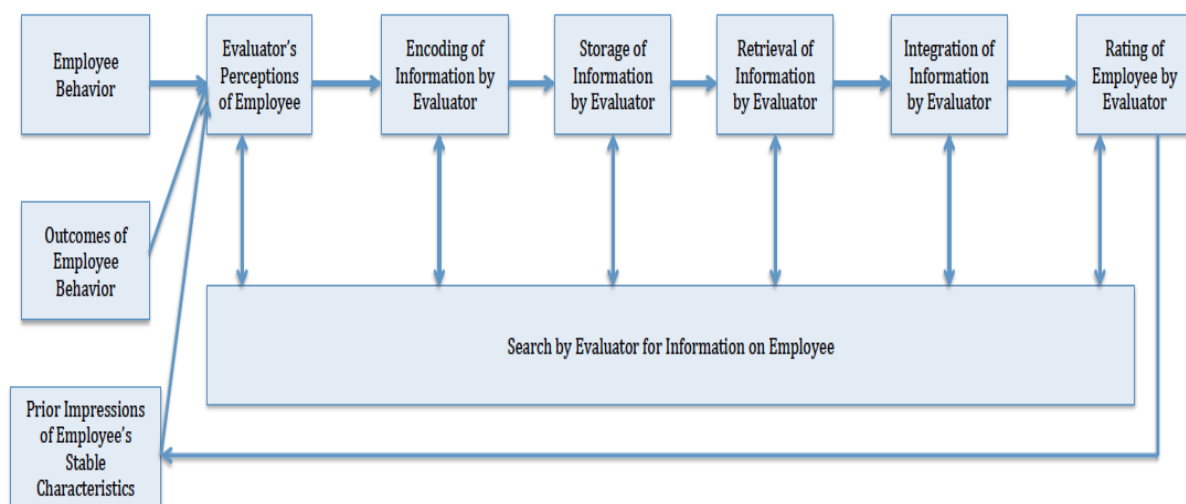


Figure 12.7: Cognitive Processes Involved in Evaluation of Employee Performance

Encoding is the process by which the observer interprets the raw data once it leaves the sensory store. A supervisor is likely to observe thousands of acts on the part of a subordinate, such as standing around the water cooler, working late at night, joking with fellow workers, helping a customer. From the raw data, the supervisor develops an idea of what the employee is like. This idea is called a mental representation and can exist in more than one form, such as a general impression (Fred is a lousy worker), a specific trait (Fred is lazy), or a visual image (a mental picture of Fred lounging around the water cooler).

Cognitive structures in performance appraisal occur in the form of cognitive categories and schemas that affect all the steps of the evaluator's information processing but are especially important in the encoding stage. Cognitive categories are collections of things, entities, or people that the rater considers equivalent. Once an employee is labeled as belonging to a category of people (e.g., labeled as a typical salesperson), the observer infers that the individual shares all the other-characteristics possessed by members of that category, e.g., the person is just like other

salespeople: outgoing, aggressive, brash). The process of categorization is guided by schemas, which are relationships that the rater believes to exist among attributes. Implicit personality theories are a type of schema consisting of a belief about how the interrelations among a set of traits. A rater's implicit personality theory might suggest that people who are intelligent are also cold and hardworking. If the rater categorizes an employee as intelligent, then he infers on the basis of the implicit personality theory that the employee is also cold and hardworking. The implicit personality theory leads the rater from the label of "intelligent" to the inference of cold and hardworking. Categorization and implicit theories are also involved in unfair discrimination. An example is a rater who believes that the typical "old" person is overly conservative, moody, and dull, and who, on the basis of a single bit of evidence such as gray hair, lumps an employee into the general category of old person. Once the label is attached, all sorts of characteristics associated with old people in the rater's implicit theory are then attributed to the employee.

Storage in memory as the rater integrates and stores information on the employee in memory. Memory is highly malleable and is subject to distortion. Few human raters can remember all the information on an employee. Instead, they organize their storage of information around mental representations. In the process they forget some events that occurred and incorporate other events that never occurred. A key to improving the appraisal process is to use procedures that force the evaluator to attend to specific behaviors rather than general categories and that encourage a more deliberate and thoughtful processing of information. This is exactly the objective of several of the rating procedures that are discussed in this chapter.

Causal attributions occur when evaluators ask why an employee shows a particular level of performance. Why does Fred lounge around the water cooler? Why did he do so poorly on that last project? Why was he late to work last Monday? Attribution is the process that evaluators use to dig into underlying causes. At one level, the evaluator decides whether the ratee (internal locus) or something outside the ratee (external locus) is the cause of the behavior or outcome. At another level, the evaluator decides whether what happened is due to a stable trait (e.g., Fred is a lazy person and is likely to remain lazy), or is due to some unstable, temporary factor (e.g., Fred was just having a bad day). A general tendency is to assign more responsibility to the person than is warranted by failing to recognize the importance of the situation (Ross, 1977). If an employee has an accident on the job the supervisor might ask what the employee did wrong without paying careful attention to the workplace as a possible cause of the accident. The fundamental attribution bias is the tendency to attribute behavior and outcomes to the person and neglect external causes.

A potential solution is to train raters to acknowledge situational factors. Another solution is suggested by evidence that raters with task experience are more likely to take into account situational factors than inexperienced raters (Mitchell & Kalb, 1982). Thus, it is wise to use raters who have prior task experience and who can understand the situational factors that can influence performance. Perhaps the best solution is to encourage evaluators to approach performance appraisal as a problem-solving process rather than as a foregone conclusion. The chapter later discusses Maier's notions of the problem-solving approach to conveying performance feedback.



Information gathering is a crucial determinant of the quality of a performance appraisal. DeNisi et al. (1984) propose that there is a general tendency for raters to search for incidents of performance that they can attribute to internal, stable causes. To the extent that they uncover incidents that are attributable to external or unstable causes, raters continue to search for information. The way this search unfolds depends to a large extent on the evaluator's preconceived notions. Some research suggests that raters tend to look for information that confirms their prior opinions. If Fred's supervisor already has formed a negative opinion of his performance, then he may tend to look only for additional negative information. If the supervisor has a more positive impression, however, he may focus on positive information to the neglect of negative information. The consequence is a self-fulfilling prophecy in which the supervisor's treatment of the subordinate encourages the expected behavior (Feldman, 1986a). Thus, supervisors suspect that subordinates are akin to children and need close supervision. The unintended consequence of the close supervision is that subordinates who are treated like children eventually act like children.

Recall of information occurs throughout the process but is depicted in the figure as a retrieval of information on the employee at the final, formal evaluation of performance. Ideally, the evaluator retrieves all the important items of information about the employee and bases the evaluation on this information. The actual process deviates from this ideal, however. There is a tendency to recall past evaluations of the employee and not the specific information associated with them (DeNisi et al, 1984). Thus, Fred's supervisor sees him standing around the water cooler one day and labels this behavior as "lazy." Later the act of standing around the water cooler is forgotten, but the impression of Fred as lazy is remembered. As time passes, the tendency to recall the label ("lazy") and not the behaviors associated with the label becomes even more pronounced.

An obvious solution is to require more frequent performance appraisals to reduce the delay between the performance and its appraisal. Not surprisingly, an appraisal conducted soon after the performance is more accurate than if it were delayed (Heneman & Wexley, 1983; Murphy, Gannett, Herr, & Chen, 1986). Another solution to the memory loss in appraisals is to have supervisors keep a running record of the employee's behavior. In an experiment demonstrating the effectiveness of this procedure, one group of students in a general psychology class kept an observational diary by recording critical incidents of teacher behavior related to each of the dimensions on which they were to evaluate the teacher (Bernardin & Walter, 1977). The group that was trained in the use of the scale and kept a diary was less lenient, more reliable, and less prone to halo than the untrained students who did not keep a diary. Findings such as these leave little doubt that keeping a diary improves the accuracy of ratings. Still, this approach is often impractical because of the reluctance of the typical, busy manager to take the time to record observations.

Data integration and final evaluation is the last stage in the process. At this point the evaluator combines retrieved information and forms a final evaluation of the employee's performance. The hope is that evaluators rationally take each item of information, attach some weight to the item, and then combine these various components in an algebraic fashion. This process is often short-circuited, however, as raters form judgments and then recall and integrate information in a manner that is consistent with the conclusion. A solution is to require a rating of specific

performance dimensions prior to, or instead of forming an overall judgment of the performance. With many of the rating procedures discussed in this chapter, the overall evaluation is formed by averaging or summing the ratings on individual dimensions.

Figure 12.7 is intended to provide a framework for thinking about what goes wrong in performance evaluations and how to avoid and correct these failures. It is admittedly simplistic in several respects. For one, appraisal processes do not follow a strictly linear path. For instance, a rater is likely to go from encoding to retrieval and back again to encoding in the process of forming impressions of employees. Also, raters seldom withhold their judgments until the final formal appraisal. The entire process is punctuated at numerous points by the judgments of the employee. Figure 12.7 presents a simple sequential process in which each stage occurs as a consequence of past stages and then serves as the cause of the subsequent stage. This is inconsistent with current thinking about human cognition. The parallel-distributed processing model proposes that the stages of information processing depicted in figure 12.7 occur simultaneously rather than sequentially and is guided by a complex set of interconnections (Rumelhart & McClelland, 1986). The reader should not conclude from figure 12.7 that this is the sequence of events describing the exact sequence by which evaluations are formed. However, figure 12.7 does help in considering ways of increasing the quality of ratings through improvements in rating scales and rating procedures, and the training of raters.

Points to ponder:

1. Consider each of the rating biases and show how the bias could occur as a consequence of each step in the model presented for information processing and gathering. For example, how might schemas or other cognitive structures account for halo?
2. For each of the step in the information processing and gathering model, consider specific ways one might attempt to avoid bias through actions that focus on that step.

Organizational and social determinants of ratings.

The most immediate causes of performance evaluations are the cognitive processes of the rater, but there are contextual factors external to evaluators that also influence ratings. These include the purpose of the appraisal, the organizational climate or culture, the accountability of the rater, organizational politics, and other factors associated with the social context. These influence the appraisal process indirectly by triggering information processing and gathering. They also directly influence the appraisal process and can overshadow the information processing depicted in figure 12.7.

Purpose of the rating.

Appraisals are conducted for a variety of reasons (Cleveland, Murphy, & Williams, 1989). The specific purpose of a performance appraisal as perceived by the rater is a major determinant of the outcome of the appraisal. A common finding is that ratings gathered for experimental purposes (e.g., test validation, training) are less lenient (Taylor & Wherry, 1951; Sharon & Bartlett, 1969) and more accurate (Dobbins, Cardy, & Truxillo, 1988) than ratings that are gathered for administrative purposes (e.g., to determine pay increases, layoffs). Similarly, ratings

gathered to develop and improve employees appear to differentiate more among ratees than ratings gathered to determine merit raises or to decide which employees to retain (Zedeck & Cascio, 1982).

#### Organizational culture/climate.

Organizations vary in the norms, roles, and values that are most important in their cultures/climates and these differences affect the accuracy and fairness of performance appraisals. Researchers in one study compare the bases for performance appraisals of resident advisors in university dormitories and report that the climate of the residence hall has a significant effect on residents' appraisals of resident advisor performance (Zammuto, London, & Rowland, 1982). Using the same evaluation scales, evaluators in two emphasize understanding students' problems; evaluators in another emphasize efficiency in planning and conducting meetings; evaluators in the remaining dorm give approximately equal emphasis to understanding student problems and availability for advising students.

An organization's culture/climate also support or discourage discrimination in appraisals against employees on the basis of race, age, sex, and other factors. In other words, supervisors tend to rate some employees less positively because others in the organization expect them to give lower evaluations to these employees. Some evidence of this was found in a study of age bias (Lawrence, 1988). Managers in an electric utility were asked to estimate the typical age of employees at a particular level of the organization and to indicate the age range at each level. Using these data, the managers were grouped into those whose careers were ahead of schedule, on schedule, and behind schedule relative to the typical age of those at the employee's level. The managers perceived as young for their position (so-called "fast trackers" or "water walkers") received higher evaluations than those seen as older relative to the normative age at their level. Similar norms may account for bias against women, blacks, and other groups. The implication is that eliminating bias requires changing the norms of the organization.

Among the most important elements of culture/climate are the beliefs of employees that they can trust management to act fairly and competently. Lawler (1971) suggests that if there is a lack of trust in management, formal performance appraisal should not be used unless highly objective performance data are available. Kane and Lawler (1979) further suggest that performance appraisal systems are more effective in improving performance when tasks and goals are clear than when they are ambiguous.

#### Accountability of the rater for the appraisal.

The accuracy of performance appraisals is the extent to which the organization requires appraisers to justify their decisions and judgments. A possible means of increasing accountability of supervisors for their appraisals is to set up a review panel to oversee the performance appraisal system and give feedback to managers on their implementation of appraisals (Bernardin, 1986).

Social psychological research suggests that accountability increases vigilance in the monitoring of performance, the complexity of judgment and decision strategies, self-awareness of cognitive processes, and the use of data-driven processing of evidence (Tetlock, 1985). There are situations

where holding people accountable lead to bad judgments. One study reports that evaluators are more biased against older employees when the evaluators believe that they are accountable to experts who will review their ratings (Gordon, Rozelle, & Baxter, 1988). In this case, raters comply with what they believe are the expectations of the experts that older employees deserve lower ratings. According to the authors, accountability creates an information overload and raters rely on stereotypes to cope with this overload. These findings demonstrate that improvements in performance appraisal require that the person to whom the evaluator is accountable values accuracy and fairness. When a rater is held accountable to a supervisor or some other authority figure and this other person is biased, accountability reduces the accuracy and fairness of appraisals.

#### Politics of the organization.

Appraisals are not always a sincere attempt to come up with an accurate assessment of how well an employee is doing. Anyone observing performance appraisals as they are actually conducted in the organization knows that appraisals can serve as political tactics that are used to win or maintain power relative to others in the organization. Disturbing evidence of this was provided in a study conducted with 60 upper level executives (Longenecker, Sims, & Gioia, 1987). A surprising number of these respondents admit that they deliberately manipulate formal appraisals for political purposes and that organizational politics are almost always a factor. A surprising number of respondents indicate that they intentionally inflate appraisals (1) to maximize the merit increases that are given to a subordinate, (2) to protect or encourage an employee whose performance is suffering because of personal problems, (3) to avoid hanging out "dirty laundry," (4) to avoid creating a written record of poor performance, (5) to avoid a confrontation, (6) to give a break to a subordinate who has improved, and (7) to justify promotion and rid themselves of a poorly performing subordinate. Poor appraisals are sometimes given to shock a subordinate, teach rebels a lesson, send a message that a subordinate should consider leaving, and to build a case against a subordinate. Whether managers approach the appraisal process as a game is likely to depend on the attitude of top management. If higher management takes appraisal seriously, the lower levels of management seem much more likely to do the same.

As an example of how politics entered into the evaluations by Olympic judges in one of the Olympic games, take a look at the following link:

[http://www.askmen.com/top\\_10/sports/top-10-controversial-victories\\_2.html#ixzz1pn3e6YRv](http://www.askmen.com/top_10/sports/top-10-controversial-victories_2.html#ixzz1pn3e6YRv)

#### Other contextual determinants of ratings.

In a review of conscious rating distortions, Spence and Keeping (2011) discuss three primary motives affecting the performance appraisals that supervisors give their subordinates. One is achieving or maintaining a good relationship with subordinates. A second motive is to convey a favorable image of themselves and the workgroup they supervise. A third motive is to either support or avoid violating organizational norms and goals. Supervisors provide accurate ratings if doing so is instrumental in fulfilling these motives. To the extent that distortion of the ratings serves these motives, they will provide evaluations that are more or less favorable than deserved. According to the authors, "...performance improvement may be only one means to achieving a

rater's performance appraisal goal. ...to become more relevant to performance appraisal practice, the performance appraisal literature needs to more deliberately shift away from the assumption that accuracy is the ultimate goal of a rater” (p. 92).

Using rating scales to improve ratings.

Graphic scales are vulnerable to rating effects and errors. As a consequence, I/O psychologists propose alternatives that attempt to eliminate the problems associated with graphic scales. One approach is to try and improve the rating task so that the evaluators more accurately recall and interpret that information. Five approaches to improving the rating task are discussed here: Behavioral Anchored Rating Scales (BARS), Behavioral Expectation Scales (BES), Mixed Standard Scales (MISS), Weighted Checklists, Behavioral Observation Scales (BOS), and Forced Choice scales. With all these approaches the attention of raters is focused on specific behaviors to a greater extent than graphic rating scales. The idea underlying all of them is that rating errors are reduced if the rater's primary task is to observe and describe, rather than to make global evaluations of ambiguously described dimensions. Common to all these approaches is that an evaluation is derived based on prescaled values of behaviors from behavioral descriptions of the ratee's performance.

Behaviorally anchored rating scales (BARS) and behavioral expectation scales (BES).

Both these types of scales use a numerical rating scale to evaluate each of the performance dimensions (see figure 12.8), but to increase the accuracy and reliability of ratings, each number on the scale is anchored with specific behaviors that define what the point on the scale means. The procedures for developing Behaviorally Anchored Rating Scales (BARS) were first set forth by Smith and Kendall (1963) and consist of five steps.

1. First, people knowledgeable about the job generate critical incidents of performance.
2. In the second step, the same or different persons sort the incidents into 5 to 10 performance categories to determine the dimensions on which performance is to be evaluated.
3. In the third step, the incidents are scrambled and other experts reallocate them to the performance dimensions generated at the second step. If a high percentage of the experts agree on the reallocation of an incident (50% to 80% or higher), the incident is retained; otherwise, it is discarded.
4. In the fourth step, experts rate the remaining incidents on performance level
5. Finally, incidents with low standard deviations (indicating high agreement among the experts) are chosen to anchor several levels of performance on each dimension. In using the scale, the rater is instructed to evaluate the employee's performance on a dimension. Specifically, the rater is to pick a scale value on a dimension if the past performance of the employee is typical of the behavior represented by the anchor, even if the employee never actually exhibited the specific behavior. A variation on these instructions is to have the rater indicate what the employee is expected to do on each dimension. This version sometimes is called a Behavioral Expectation Scale (BES).

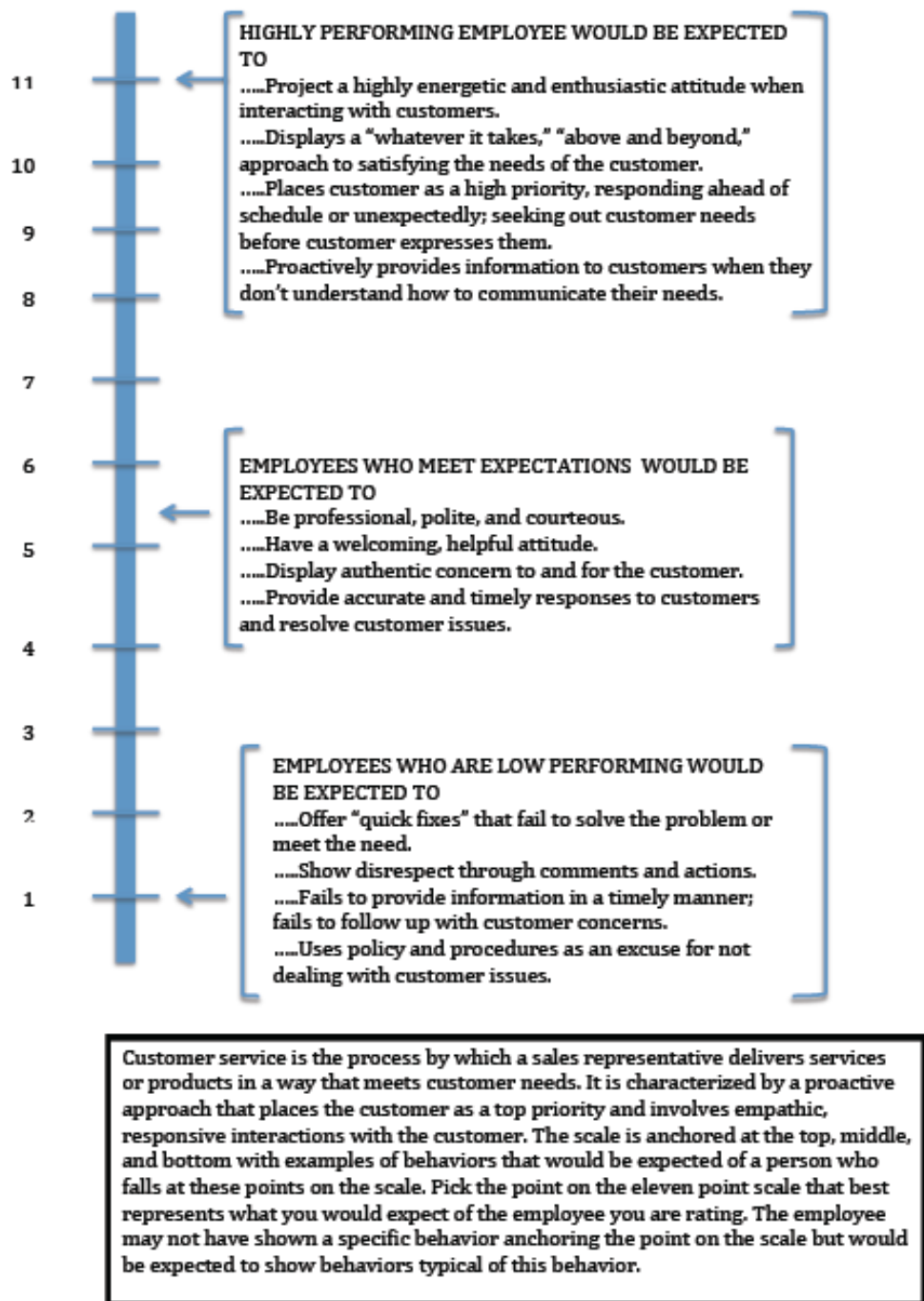


Figure 12.8: Example of a Behaviorally Anchored Rating Scale (BARS) Used to Measure the Customer Service Dimension of Sales Performance

### Mixed standard scale (MSS).

A BARS provides clearer anchors than the typical graphic scale, but raters still know the dimension (e.g., dependability) on which they are evaluating an employee at the time they are making their ratings. Consequently, evaluations on BARS are subject to halo, leniency, and other rating effects because it is obvious what is high and what is low on the scale. The Mixed Standard Scale (MSS) hides the dimensions and focuses the evaluation on what would be the anchors in a BARS (Blanz & Ghiselli, 1972; see figure 12.9). The MSS is developed in a manner similar to a BARS. Experts generate dimensions and examples of performance on each dimension. There is an allocation step in which experts sort the items according to dimensions and retain those for which there is a high amount of agreement. Experts also rate each example on the level of performance represented by the item.

Unlike BARS, the actual instrument on which an employee is evaluated lacks dimension labels and has no anchored rating scales. Rather, examples are chosen to represent good, average, and poor performance for each dimension, and these examples are listed in random order. The rater conducting the appraisal indicates for each item whether the person's performance is better than, the same as, or worse than the performance indicated in the statement. Realize, however, that the evaluator is not describing whether the person evaluated actually showed the specific behavior in the item. Rather, the evaluator is to evaluate whether the person's typical performance is better than, the same as, or poorer than the level of performance represented by the item. The rater is told neither the dimension associated with the statement nor the level of performance that the statement represents. A scale value is assigned on the basis of the pattern of responses to the three items for a dimension (see figure 12.9). For instance, if the person who is rated is seen as doing better than all three items, the person's performance on the dimension is transformed into a rating of 7. A person who is seen as performing poorer than all three items receives a rating of 1.

How well does the MSS do in improving the quality of performance ratings? Evaluations of the MSS show both benefits and liabilities of the method. Early research presents some evidence that a MSS reduces leniency and halo (Blanz & Ghiselli, 1972; Finley, Osburn, Dubin, & Jeanneret, 1977; Saal & Landy, 1977). Subsequent research findings are not as positive in their support. This scale-type is not well-received by raters and is seen as more difficult to use than a BARS or graphic rating scale (Dickinson & Zellinger, 1980). Also, disguising the dimensions, a primary feature of the MSS, seems to make little difference in the quality of ratings. This is shown in an experiment conducted by Dickinson and Glebocki (1990) comparing ratings of raters for whom the dimensions on the MSS are disguised with raters who were told the dimensions. No differences in halo and leniency are found between the two conditions.

A third potential problem with the MSS is that the format confuses raters rather than helps them make judgments. Some indication of this is the high rate of logical error that is been found in some research with the MSS (Barnes-Farrell & Weiss, 1984; Prien & Hughes, 1987). A logical error is detected by examining the pattern of responses on a MSS. Assume, for example, one uses a MSS to measure performance of a supermarket cashier on the dimensions of "skill in human relations." Also assume that the MSS uses three of the anchors from the BARS illustrated in figure 12.8. If the rater indicates that the cashier performs at a level that is better than the positive item (e.g., "You can expect this checker to create a feeling of trust") but also poorer than the negative item (e.g., You can expect this checker to argue with a customer over a price), then

this pattern is a logical error on the part of the rater. Logical errors such as this are common and could reflect rater carelessness or confusion.

Favorability of the Behavior Incident			Derived Rating
<u>Positive</u>	<u>Average</u>	<u>Negative</u>	
+	+	+	7
0	+	+	6
-	+	+	5
-	0	+	4
-	-	+	3
-	-	0	2
-	-	-	1

*Note: In evaluating an employee on a performance dimension, the rater is presented with one positive, one average, and one negative behavioral incident. The rater indicates for each incident whether the employee's typical performance on that dimension is better than (+), equal to (0), or poorer than (-) the performance indicated by the incident. The seven patterns of ratings in the table are considered valid and a rating is derived from the specific pattern. All other patterns are considered errors. See Saal (1979) on how to treat errors.*

Figure 12.9: Patterns of logically consistent responses in the Mixed Standard Scale (MSS) and the rating derived from each pattern

#### Behavioral observation scale (BOS).

In a behavioral observation scale (BOS) the frequency with which each behavior is observed for the employee is rated, and the evaluation of the employee on a dimension is the sum or mean of these ratings (see figure 12.10). The steps followed in developing a BOS, are similar in several respects to the development of the BARS (Latham & Wexley, 1981). The first step is to identify the crucial dimensions of job performance by asking experts to provide critical incidents of effective performance. The behavioral items generated are then allocated to the various dimensions, and those items that judges agree belong to a dimension are retained. A chief aim in the development of a BOS is high internal consistency (go back to previous chapters for a discussion of internal consistency reliability). To achieve this, the correlation of the response to each item with the total score on a dimension is computed. Items are retained that have the largest correlations with the total score.

A BOS appraisal consists of ratings of the frequency with which the employee demonstrates the specified behavior. Although there is little consensus on how to structure frequency ratings, Latham and Wexley (1981) recommend a 5-point scale in which 1 represents 0-64% of time, 2 is 66-74%, 3 is 75-84%, 4 is 85 - 94%, and 5 is 95-100%. The danger in relying on frequency judgments is that an infrequent event can become an extremely important performance. A tanker captain does not spill oil on a frequent basis but just one spill is enough to constitute a bad



performance of catastrophic proportions.

Figure 12.10: Example of a Behavioral Observation

Record your observations of the cook on the behaviors						
Almost never	1	2	3	4	5	Almost always
Is careful not to waste food.	✓					
Keeps grease off floor and counters.					✓	
Uses tongs or spatula to handle food rather than hands.				✓		
Cooks meat that looks and/or smells bad.	✓					
Comes up with new recipes or ideas for modifying existing recipes.			✓			
Prepares for the next shift so that the next cook has minimum rather than maximum work to do.					✓	
Consults other cooks for suggestions on ways to help one another.				✓		
Customers complain about the quality of the food.		✓				
Is open to suggestions from management and employees.					✓	
Keeps sink clean.					✓	
Runs out of supplies, for example clams, potatoes, forks, napkins, milk, ketchup, and the like.			✓			
Anticipates busy and slow days in terms of how much fish to cut and how many potatoes to peel.					✓	
60 – 192	193 – 222	223 – 252	253-282	283-300		
Very poor	Unsatisfactory	Satisfactory	Excellent	Superior	Total = ____	

Note: These are 12 of 60 items used in this scale.

Scale (BOS) Used to Evaluate a Cook

### Forced choice measures.

In the attempt to get supervisors to differentiate among subordinates in appraisal ratings, psychologists propose a variant of the weighted checklist method called forced choice appraisal (Berkshire & Highland, 1953). With this method the supervisor chooses from among performance items that are matched on how good they sound but actually differ in the extent to which they discriminate effective from ineffective performance (see figures 12.11 and 12.12).

This method presents raters with a set of behaviors that are prescaled by having supervisors rate a large group of items on a whether the items reflect a highly favorable to highly unfavorable

performance. Only those items on which supervisors agree are retained. The value attached to each item is the median of the supervisor ratings. Items are not only scaled on how well they distinguish the effective from the ineffective performers but also on how good or socially desirable they seem. One form of the forced choice method presents the rater with three items that vary on favorability (see figure 12.11).

Pick the behavior that is least descriptive and the behavior that is most descriptive of the three alternatives listed for each item.			
	Most Descriptive	Least Descriptive	
Item 1.			
(a)	✓		Teller is always on time
(b)			Teller never has shortages in register at end of day.
(c)		✓	Teller smiles at each customer
Item 2.			
(a)		✓	Teller helps out other tellers when they have problems.
(b)	✓		Teller keeps work area neat and orderly.
(c)			Teller is friendly to other employees.

Figure 12.11: Example of Forced Choice Evaluation Using All Favorable Alternatives

In another version of the force choice method, four items are presented. Figure 12.12 is from a force choice instrument developed to measure instructor performance in the Air Force.

Pick the behavior that is least descriptive and the behavior that is most descriptive of the four alternatives listed.				Favorability	Discriminability
	Most Descriptive	Least Descriptive			
(a)	✓		Professional appearance.	3.01	1.21
(b)			Adapts readily to new duties.	2.98	.59
(c)		✓	Is not well qualified to instruct in all aspects of the subject.	.65	-.75
(d)			Does not put class at ease.	.78	-.13

Figure 12.12: Example of Forced Choice Evaluation

In the force choice method, the options vary on both favorability and discriminability.

Discriminability refers to the ability of the item to distinguish good performers from poorer performers. For instance, the favorability and discriminability indexes are presented in the example above. Two items distinguish between the low and high performance, with one item representing good performance the other item bad performance. Two other items do not distinguish between high and low performers despite the fact that one sounds very good and the other sounds bad. The final performance appraisal is the sum of the value of those items chosen across all these quartets that actually differentiate between different levels of performance. The forced choice procedure is reliable and seems to yield measures of performance that are consistent with other measures (King, Hunter, & Schmidt, 1980). There is also some evidence that the use of forced-choice scales to measure performance boosts criterion-related validities obtained for predictors as much as 50% (Bartram, 2007).

Unfortunately, supervisors appear to detest forced choice procedures. Another potential problem is that after repeated use, supervisors eventually determine which alternatives yield the most favorable ratings. An organization needs to add new items to prevent supervisors from gaming a forced choice system.

#### Weighted checklist measures.

In this rating procedure the rater is given a list of performances and checks off those that are applicable to the employee. One version starts with a pool of critical incidents of performances (see figure 12.13). Judges indicate the level of performance reflected in each item, and those incidents on which judges can agree are retained. The median of the rated values of the items checked is the performance appraisal assigned to the ratee. Still another variant of the weighted checklist of performance appraisal is to take the items and through statistical means determine the extent to which each item distinguishes exceptional from poor performance.

Figure 12.13 is an example of a weighted checklist (Jurgenson, 1949). The values in the first column are the scaled values of each item. These were obtained by having supervisors rate a large group of items on a nine-step scale to describe whether the items reflected a highly favorable (9) to highly unfavorable (1) performance. The value attached to each item was the median of the supervisor ratings. In using this weighted checklist, the rater checks off those items that describe the ratee and the median of the scale values associated with the checked items is the performance appraisal. One approach to scoring a weighted checklist is to first subtract the scale value of each item checked by the evaluator and then taking the sum of those differences (Jurgenson, 1949). In the example below the scale value of each item checked off for an employee is first subtracted from the midpoint of the scale (i.e., 5). The performance appraisal is then calculated by taking the sum of the recalibrated scale values of those items checked.

Item	Scale Values		Employee		
	Original	Revised	A	B	C
Is one of the best employees in the department.	8.6	3.6	X	X	X
Has unusually good quality.	8.4	3.4	X	X	X
Carries through on all jobs.	8.2	3.2	X	X	X
Is extremely loyal.	8.0	3.0	X	X	X
Gives close attention to instructions of the supervisor.	7.8	2.8	X	X	X
Plans work well.	7.6	2.6	X	X	X
Has good judgment	7.4	2.4	X	X	X
Learns new work easily.	7.2	2.2		X	X
Is enthusiastic.	7.0	2.0		X	X
Reacts favorably to corrections.	6.8	1.8		X	X
Starts work earlier than others.	6.6	1.6		X	X
Is a steady worker.	6.4	1.4			X
Gets help when in difficulty.	6.2	1.2			X
Profits from past mistakes.	6.0	1.0			X
Is pleasant and courteous	5.8	.8			X
Does fair share of work.	5.6	.6			X
Does not give excuses when corrected.	5.4	.4			X
Total score based on median			8.0	7.6	7.0
Total score based on revised scale values			21.0	28.6	34.0

Note: Values in revised score column were computed by subtracting five from the original score values.

Figure 12.13: Example of Weighted Checklist  
Used in Evaluating Employee Performance.

### Forcing comparisons to improve evaluations.

Despite the sophistication of the various rating methods, none can guarantee that leniency, severity, or central tendency do not enter into the evaluation of employees. This is a major problem if the primary use of the appraisal is to differentiate among employees to facilitate the allocation of rewards or decide which employees to promote, lay off, transfer, and so on. The surest method of avoiding these biases is to force evaluators to compare the performance of each employee with those of others. The comparative approach includes rankings, paired comparison, and forced distribution.

With rankings of performance appraisal, a determination is made of the best to the worst employee on each dimension and/or on overall performance (see table 12.3). While this seems simple, the task becomes quite difficult as the number of employees ranked increases. Alternation ranking is a procedure that can help simplify the task and involves assigning a 1 to the best performer and a value of N to the worst performer in a group of size N. Next, the best and worst of the remaining people are ranked. This continues until all are ranked. Although ranking allows the organization to distinguish among employees, their true performance is unlikely to match the rectangular distribution that ranking procedures assume to exist. Nevertheless, a ranking approach can force supervisors to distinguish among employees when tough decisions are required. The ranking procedure yields a crude measure that ranges from 1 to N in value.

Rating Dimension	Rating Dimension				
Employee	Initiative	Quantity	Courtesy	Quality	Mean
Gertrude	1	4	3	2	2.50
Ralph	3	5	1	3	3.00
George	4	1	3	5	3.25
Thomas	2	2	2	1	1.75
Charlie	5	3	4	4	4.00

Table 12.3: Example of Ranking of Employees on Four Performance Dimensions

Paired comparison performance appraisal yields a much more precise estimate of performance and consists of taking all possible pairs of employees and asking the judge to pick the better performer in each pair (see table 12.4). The percentage of times each employee is chosen as the better performer is used to derive a measure of performance. This procedure becomes exceedingly complex when a large number of employees are evaluated. With 10 employees the number of comparisons is 45; with 20 it is 190; and with 30 it is 435.

Another potential problem is intransitivity. An example is employee A who is judged better than B. B is judged as better than C, but then C is evaluated as better than A. Intransitivity is a greater problem when the number of comparisons is large and the differences in performance among employees are fairly small. To avoid the intransitivity problem appraisers should be given well-defined, specific components of performance rather than having appraisers compare employees on their overall (global) performance.

Employees	Possible Pairs	Employee Picked as Higher on Performance	Score (# times picked)
Gertrude	Gertrude vs Ralph	Gertrude	Gertrude: 4
Ralph	Gertrude vs George	Gertrude	George: 3
George	Gertrude vs Thomas	Gertrude	Ralph: 2
Thomas	Gertrude vs Charlie	Gertrude	Thomas: 1
Charlie	Ralph vs George	George	Charlie: 0
	Ralph vs Thomas	Ralph	
	Ralph vs Charlie	Ralph	
	George vs Thomas	George	
	George vs Charlie	George	
	Thomas vs Charlie	Thomas	

Table 12.4: Example of Paired Comparison Method of Performance Evaluation

In the attempt to prevent leniency bias and allow the differentiation among employees, many

organizations use forced distribution performance appraisal in which supervisors can only assign a predetermined number of employees to each point on the scale. In this approach supervisors sort employees into categories using predetermined quotas (see figure 12.14). In some cases, the distribution approximates a normal curve: 10% receiving a 1; 20% a 2; 40% a 3; 20% a 4; and 10% a 5. More common is a curve with a negative skew, for example, 5% receiving a 1; 25% a 2; 50% a 3; 25% a 4; and 10% a 5. An example with which the reader is familiar is the grading curve in a class. Consider an instructor who decides to give no more than 10% As, 25% B's, 50% C's, and 15% D's. A lot of large corporations use forced distribution procedures in evaluating employees. The findings from a survey claimed that around 25% of large corporations use them (Meisler, 2003). In the following video, Jack Welch, a former CEO of GE, provides a cogent case using a Forced Distribution system. This is a long video but in the first 20 or so minutes he presents his arguments for the use of forced distributions.  
<http://www.youtube.com/watch?v=PaXO9Uab6K0>

A somewhat draconian version of forced distribution is the rank and yank system. In one example, employees doing similar work in a group are not only rated on a 1 to 4 scale but are also ranked ("New R&R doesn't give executives any rest," Wall Street Journal, December 13, 1991). Only 10% can get the top and bottom ratings, with the remainder falling at the middle two scale points. Those who receive the lowest ratings and rankings are fired if they do not improve within three months. Those receiving the top ratings receive bonuses.

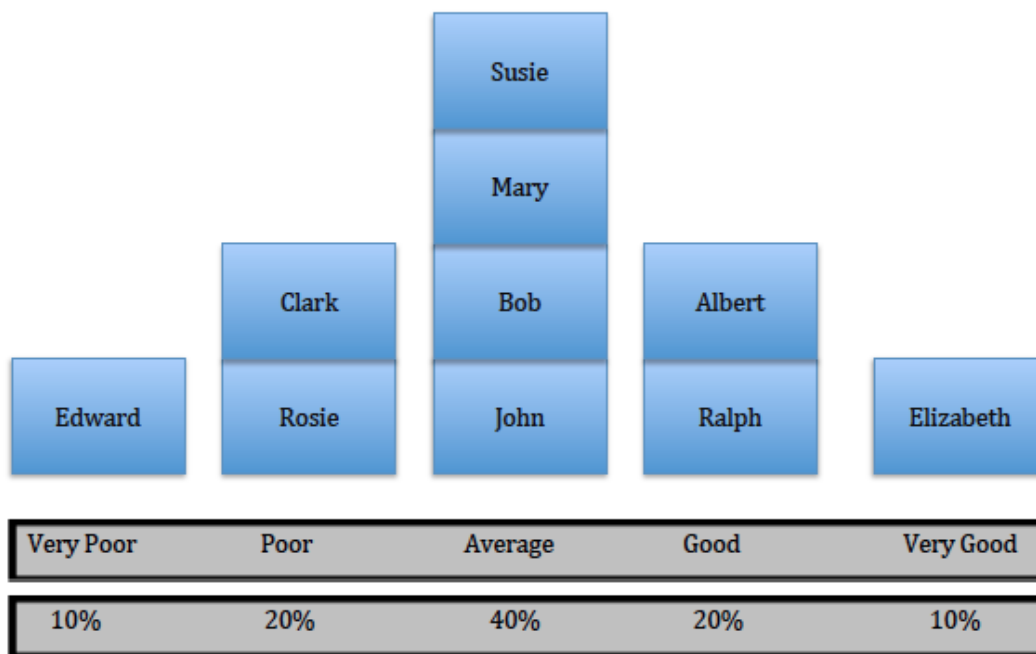


Figure 12.14: Example of the Use of Forced Distribution Method of Performance Evaluation



*With forced distribution evaluation there are winners and losers. Image courtesy of iosphere at FreeDigitalPhotos.net*

Problems can occur with a forced distribution procedure when quotas do not match the true distribution of performance. What if, for instance, 60% of the employees are doing an excellent job but the forced distribution system allows only 10% to receive the highest rating. Forced distribution procedures can also hurt cooperation as employees in an organization compete against each other for top ratings. The consequence is that employees may take a win-lose orientation to their work when they should be cooperating. For another example check out this link. It is a short description of Enron's use of a "rank and yank" system and how it played a part in this corporation's catastrophic economic and moral failure. Enron declared bankruptcy amidst accusations of fraud, cheating, stealing, and lying. Several of their top executives went to jail. Others committed suicide. The rank and yank system of appraisal led to cut throat competition among employees that led to a "win no matter what" mentality.

<http://www.youtube.com/watch?v=eA0Rv3JddCk>

Another example is AT&T:

<http://www.youtube.com/watch?v=SPVs5oiVjlw>

As the result of the problems associated with forced distribution, the number of large corporations adopting this approach has declined in recent years according to some reports (Olson, 2013).

#### Summary of research on rating scales.

Psychologists have searched for better rating scales to eliminate the rating biases and errors so often found with graphic scales. As a result of these efforts, organizations seeking numerical scales to use in employee evaluation have a variety of methods to choose from. With all the effort expended on developing more sophisticated rating methods, none of the alternatives seem sufficiently superior to justify unqualified use across all situations. The three published meta-analyses of the research comparing rating scale types conclude that there are few differences among the various rating scales on the extent of agreement between subjective ratings and objective data (Heneman, 1986), race biases in performance appraisals (Kraiger & Ford, 1985), and agreement among self, peer, and supervisor evaluations (Harris & Schaubroeck, 1988). In short, each of the methods has strengths and weaknesses, but there is little basis for concluding that any one of the rating procedures is necessarily superior to any of the others. In deciding among the alternative scales, there are some contingencies that are worth considering.

The best type of instrument best depends on the appraisal task (Feldman, 1986b). If there is an objective performance model specifying the relationship between task behavior and task outcome and the appraiser is essentially an observer and recorder of behaviors, then a BOS or BARS is most appropriate. If objective performance is absent and the appraiser must be an interpreter of behavior and outcomes, then a MSS or a well-anchored graphic scale is best suited. A second consideration is whether the appraisal system is intended for purposes of control and administration (e.g., deciding which employees to lay off or how to allocate salary increases), then a paired comparison, forced distribution, or ranking method is appropriate. If the purpose is to provide feedback for improvement and the development of employees, then a BARS, BOS, MSS, or some other method that provides more specific behavioral information is appropriate (Hom, DeNisi, Kinicki, 1982).

On occasion the scale itself is not as important as the process followed in its development. To address this question, researchers in one study assigned Air Force ROTC students at a large university randomly to one of three conditions (Friedman & Cornelius, 1976). In one condition they participated in the construction of a BARS rating scale following the steps described earlier for the construction of a BARS. A second group participated in the development of a graphic rating scale. A third group used a graphic scale but did not participate in its development. Subjects in all three groups were asked to rate their instructors. Participation in scale construction, apart from the type of scale, was found to reduce rating biases. The most reduction was found for the scale that was constructed with direct student involvement.

#### Training to improve performance appraisals.

Training often focuses on reducing rating effects such as halo and leniency (Bernardin & Buckley, 1981; Spool, 1978; Smith, 1986). Unfortunately, eliminating these rating effects does not guarantee accuracy of rating by replacing one effect with another (Bernardin & Buckley, 1981). For instance, if raters are instructed to avoid leniency and, in response, they become very severe in their ratings, then the training might increase, not reduce, rating error. Bernardin and Buckley (1981) recommend three types of training to replace the traditional focus on changing rating sets. First, training should focus on increasing the accuracy of the rater's observations, perhaps through having the rater keep a diary of the ratee's performance.

Another recommendation is to use training to give raters a common frame of reference for observing and rating. All raters should interpret the rating scales the same and use the following rules to convert observations into ratings. Frame of reference (FOR) training is specifically designed to provide this common frame. A third recommendation is to give special coaching in how to cope with situations in which the evaluator must give negative evaluations. Smith (1986) concludes from his review that the best way to improve rating accuracy is to use a combination of performance standards and performance dimensions training. "Before raters are asked to observe and evaluate the performance of others, they should be allowed to discuss the performance dimensions on which they will be rating. They should also be given the opportunity to practice rating sample performance. Finally, they should be provided with 'true' or expert ratings to which they can compare their own ratings" (p. 37).



The success of any training program is likely to depend on the nature of the tasks that the employees perform. Four types of tasks and the type of appraisal for each task were distinguished in one review (Lee, 1985). If there are valid and reliable performance appraisal measures and knowledge of how processes translate into outcomes (e.g., how assembly line workers should assemble the product), then train raters to record performances and translate these observations into ratings according to whatever guidelines are set forth in the appraisal system. A typical approach is to show videotapes of effective and ineffective performances and have trainees rate the performances. Feedback is provided on the accuracy of the evaluations. If there is incomplete knowledge of how task behaviors lead to outcomes but there are reliable and valid measures of performance (e.g., sales positions), then place more emphasis on frame-of-reference training in which raters meet as a group and reach some consensus on their standards. A third type of task involves work for which there is understanding of how task behaviors translate into task outcomes but there are few valid and reliable measures of outcomes (e.g., a bank teller). In this situation, train raters to observe and keep a diary of employee performance. Finally, if the task lacks outcome measures and there is also incomplete understanding of how task behaviors translate into outcomes, then use frame-of-reference training to develop and to observe 'reliable' performance behaviors" (Lee, 1985, p. 329). Next, train raters in accurate recall of instances of the behaviors and to provide justifications for their ratings. It also may be important on tasks for which there is a lack of clear understanding of how task behaviors translate. In other words, raters appear to do a better job in rating if they feel confident that they can make accurate judgments.

Points to ponder:

1. Describe how one could construct a rating measure to evaluate teacher performance for each of the methods described here, i.e., a BARS, a BOS, etc.
2. The research suggests that the type of scale used is unlikely to be a cure-all for rating biases. What are some of the organizational sources of biases that could account for biases that rating scales cannot solve?
3. Despite the findings that type of rating scale is unlikely to eliminate all biases, what are some arguments for using BARS, BOS, MSSS, and weighted checklists rather than the typical graphic rating scale?
4. The use of paired comparison, ranking, and forced distribution methods is effective in avoiding leniency, central tendency, and severity biases. What are some of the arguments for and against the use of such methods?

Who Should Judge Performance?

In evaluating performance, an organization has at least four possible sources of information: supervisors, peers, self-appraisals, subordinates, and customers. Each of these sources has strengths and weaknesses.

Supervisors?

Not surprisingly, supervisors are the most common of the sources of performance appraisals. One survey found that ninety-nine percent of respondents indicated that supervisors were the source of employee performance evaluations (Bruce, 2013). The use of supervisors is predictable

given the hierarchical structure of the typical organization, but organizations are experimenting with other potential sources of evaluations including peers, subordinates, the employees themselves, and customers.

### Peers?

Most organizations are reluctant to use peer ratings. Only eleven percent of respondents in one survey indicate that that peers are a source of employee evaluations (Bruce, 2013). One fear is that peers are overly lenient, but the evidence on this is mixed, with some studies showing that peers are more lenient than supervisors (Schneier, 1977; Zedeck, Imparto, Krausz, & Oleno, 1974) and other studies showing no difference (Holzbach, 1978; Klimoski & London, 1974). Another fear is that a peer evaluation system evokes competition and distrust among coworkers (DeNisi, Randolph, & Blencoe, 1983). This seems especially likely when peers do not trust each other and perform their tasks under a competitive reward system (Brief 1980).

Although there is a case to be made against peer ratings, the evidence seems clear that peer evaluations (especially peer nominations) are reliable and valid predictors of future performance (Kane & Lawler, 1978; 1980). These findings are not surprising because peers often have the opportunity to observe firsthand the performances of their fellow employees. Moreover, peer evaluations agree substantially with those of supervisors, with one survey finding a correlation of .62 (Harris & Schaubroeck, 1988). If an organization moves away from the traditional hierarchical approach to management and uses autonomous work groups and teams, peer evaluations make a lot of sense. An example is Hearsay Social Inc., a San Francisco based social media software company. The employee and department head both identify co-workers who provide anonymous evaluations of the employee's performance. According to the chief technology officer, "The system provides more valuable information about each worker's performance than a review by just one person would... That's particularly true at Hearsay Social, because it has very few formal managers, most employees work across multiple teams, and leadership changes from project to project" (Silverman & Kwoh, 2012).

### Self-Appraisals?

Another option is to ask employees to evaluate their own performances. Very few employers use only self-appraisals in performance appraisal, but surveys suggest that combining self-appraisals with other sources is common. Indeed, self-appraisals are the second most frequently used source of information in performance evaluations. Researchers in one survey report that 58% of the responding firms indicate that employee self-appraisals are used in their performance evaluations (Bruce, 2013). Self-appraisals tend to show somewhat less halo than either peer or supervisor ratings. A person rating his or her own performance is probably more knowledgeable and complex in distinguishing levels of performance on different dimensions than external observers, but the downside of self-appraisals is that they are more lenient than either peer or supervisory ratings (Beatty, Schneier, & Beatty, 1977). Also, the employee's ratings of her own performance do not appear to agree very well with the ratings of her supervisor ( $r = .35$ ) or her peers ( $r = .36$ ) (Harris & Schaubroeck, 1988). By leading the employee to believe that self-appraisals will be scrutinized for accuracy, it is possible to reduce leniency (Farh & Werbel, 1986). Nevertheless, the primary value of self-appraisals in most organizations is not as a replacement for other

sources of evaluations but to stimulate reflection and to start a dialogue between the supervisor and subordinate (Campbell & Lee, 1988).

### Subordinates?

A few organizations such as IBM, Ford, and RCA (Bernardin & Beatty, 1984) use subordinate ratings of managers, but this is probably among the least used of all the sources. One recent survey found that only 7.0% of the responding organizations indicate that subordinates are used as a source of evaluations in appraising the performance of supervisors (Bruce, 2013). Perhaps the most extensive use of this source is by universities in the form of student ratings of instructors. A major concern with this approach is that people in subordinate positions are influenced by the evaluation that they expect to receive from the supervisor. On the basis of research in business organizations, Mount (1984) concludes that subordinates are a better source for some dimensions than for others. Subordinates are in the best position to evaluate "delegation" and "work direction" because they are able to directly observe performance in these areas. On the other hand, dimensions such as "know-how," "administration," and innovation are better evaluated by those who supervise the supervisor because they are directly observable and the supervisor of the supervisor has the expertise to evaluate them.

### Customers?

The use of customers is still relatively rare. Only 5% of responding organizations reported that they served as a source of employee evaluations in one survey (Bruce, 2013). Service oriented businesses such as restaurants and retailers appear most likely to use customer evaluations. Indeed, some consulting firms specialize in monitoring the work of service employees in restaurants and other customer-intensive industries. The authors know of a phone company that randomly calls customers to check on their satisfaction with the services provided by the firm. These data are used to evaluate the employees who are responsible for providing service to customers. Customers are probably less tolerant of extenuating circumstances than are peers, subordinates, or supervisors. If this is the case, their ratings may be much less lenient but more discriminating than ratings by other sources. Unfortunately, there is little research on customers as a source of performance appraisals and this remains an untested hypothesis. The best advice at this time is use them along with evaluations from other sources rather than relying on them as the only basis for the evaluation of employees.

### Who agrees with whom?

The data in table 12.5 are from a meta-analysis of the degree of agreement among different types of raters. As seen from the results, the agreement is low no matter what is the source. However, the most agreement is found among supervisors, and the least between peers and everyone else, and supervisors and everyone else.

Sources	k	N	$r_{uc}$	$r_c$
Subordinate - Supervisor	22	4,815	.22*	.57
Subordinate - Peer	14	3,938	.22*	.66
Subordinate - Self	19	5,925	.14*	.26
Supervisor - Peer	36	7,101	.34*	.79
Supervisor - Self	50	10,359	.22*	.31
Peer - Self	17	6,359	.19*	.31
Two supervisors	69	10,359	.50*	--
Two subordinates	28	4,854	.30*	--
Two peers	26	6,624	.37*	--

*K* = number of correlations; *N* = number of participants; *r<sub>uc</sub>* = sample size weighted mean correlation; *r<sub>c</sub>* = corrected correlation; \* = confidence interval for correlation excluded zero.

Table 12.5: Agreement among Sources of Performance Evaluations

360 degree evaluation and feedback.

The evidence does not support the overwhelming reliance on supervisors as the sole source of information in performance appraisals. Each of the sources of evaluations is subject to biases and has its peculiar problems. At the same time, each source is likely to provide access to useful information that the other sources cannot as readily provide. The logical solution is to use all the sources in performance evaluations. This is exactly what a growing number of employers are doing in the form of what is called 360-degree evaluation and feedback (Society for Human Resource Management, 2000).

In a truly 360-degree program, supervisors, peers, and subordinates as well as the employee himself or herself all provide input to an evaluation. In most 360 degree programs, however, the sources are limited to self, supervisor and peer appraisals. The focus of feedback is often on how self-evaluations compare with the evaluations of the different sources. Given that some appraisal dimensions are more appropriate to some sources than others, it is often the case that the dimension on which the employee is evaluated differs to some extent across sources. For instance, a supervisor might evaluate an employee on how conscientiously he or she follows rules and procedures whereas peers might evaluate the employee on how well the person does as a team player. In a survey conducted by the Society for Human Resource Management (2000) about 32% of responding firms stated that they used 360 degree programs in evaluating executives, about 29% used these programs with other professional and salaried employees, and about 18% stated that they used them with hourly employees. 360-degree programs are not without issues (van der Heijden & Neijhof, 2004). For instance, it is absolutely essential that peer evaluations are anonymous and to the extent that this is violated, these types of programs could do more harm than good.

When are Performance Evaluations Conducted?

Performance evaluations are conducted once a year by most organizations (Bruce, 2014; Society

for Human Resource Management, 2014). Although over 70% of responding organizations in the typical survey state they use annual evaluations, there are no research findings to justify this timing. There are alternatives to the traditional yearly review, such as evaluating monthly, quarterly, weekly, daily, on the completion of a project, or whenever the supervisor “catches” the employee doing something right or wrong.

One of the best ways to improve formal appraisals is to increase the frequency with which they occur (Landy, Barnes, & Murphy, 1978). Much can happen in one year, and it is probably unrealistic to expect to cover all aspects of the employee's performance in a single half-hour session. So providing monthly, weekly, daily, or even more frequent appraisals makes sense. The frequency of evaluation depends on the task, the employee, and the extent that the employee has mastered his or her job. It would make little sense to provide daily feedback to an employee who has mastered the task. Frequent feedback to a high performing employee might even backfire and demotivate the employee. The idea of evaluating performance at the completion of a project or unit of work often makes a lot of sense, but is seldom used. It's hard to break the habit of the once a year appraisal!

Points to ponder:

1. How do the sources of appraisals differ in their access to performance information and their knowledge of areas of performance?
2. Not every type of organization is likely to embrace the use of subordinate evaluations of supervisors. What type of organization do you think would be most open to this and why?
3. Why is the use of peer evaluations becoming more important with the increased use of teams in organizations?
4. Design a 360-degree evaluation system to evaluate the teaching performance of faculty.
5. There is research to suggest that appraisals should be aimed at the completion of meaningful units of work rather than simply evaluating employees once a year as is most often done. Why would the formal lead to better results? Why do annual evaluations so often fail to improve performance?

How Is Feedback Given to Employees on Their Performance Appraisals?

The annual performance review session is a ritual in most organizations that is probably perceived as a waste of time by many supervisors and employees. Imagine, for instance, the President of the U. S. holding performance reviews with all Americans in an effort to increase productivity.

<http://www.theonion.com/video/obama-to-hold-job-performance-review-with-every-am,14347/>

Can an employer use performance appraisal to increase productivity? Yes, but there are a lot of things to consider. For one, if appraisals are used to develop employees and to improve their performance, how they are communicated is essential to how well they accomplish these objectives. If done properly, few other actions have as much potential for positive change. One review of this literature found that objective feedback usually worked, with 87% of the laboratory studies and 100% of the field studies showing performance improved when people

received feedback (Kopelman, 1986). Feedback has both an informational and motivational function. In the former case, feedback informs the recipient of what works and doesn't work and can possibly allow the recipient to develop a cognitive model of the task. In the latter case, feedback increases the motivation of the recipient through reinforcing correct behaviors and punishing wrong behaviors, satisfying psychological needs (e.g., needs for recognition and self-esteem), increasing expectancies that effort will pay off, and encouraging goal setting.

Despite the consistent support for the effectiveness of feedback, it is important to note that most of this evidence comes from research involving simple tasks. In the complex tasks that people often perform in organizations, feedback is still beneficial but if improperly done can do great harm (Becker & Klimoski, 1989). One example is feedback in the form of destructive criticism. Survey results show to be among the most important causes of conflict in organizations (Baron, 1988, 1990). To understand the factors determining whether feedback succeeds or fails, one needs to examine feedback as a process in which the recipient seeks or avoids feedback. Once feedback is communicated, attention shifts to the recipient's processing of the information on performance and the response to the feedback.

### Feedback giving and seeking

For feedback to have any benefits, those evaluating performance must give the feedback in an undistorted form. The problem is that supervisors are generally reluctant to give feedback. They do not like playing God and wish to avoid arguments with those whom they evaluate. They also fear lowering the self-esteem of those who are performing poorly or giving a false sense of confidence to those who are performing well. When they give feedback, supervisors appear more likely to respond to negative performance than to positive performance (Feild & Holley, 1977; Fisher, 1979). Negative feedback is often so distorted that recipients fail to see it as negative (Benedict & Levine, 1988; Field & Holley, 1977; Fisher, 1979). Supervisors tend to give feedback that they think the recipients want to hear and avoid the bad news (one more example of the MUM effect). Researchers in a laboratory experiment demonstrate this effect by assigning students to the role of supervisor and having them provide face-to-face feedback, written feedback, or no feedback to a fictitious worker (Klimoski & Inks, 1990). In this study, the worker's self-perceived performance is described as either high or low for some of the student supervisors, while others are given no information on the worker's self-perceived performance. Students who anticipate giving face-to-face feedback are more likely to conform to the worker's self-assessment in their feedback than those giving anonymous or no feedback.

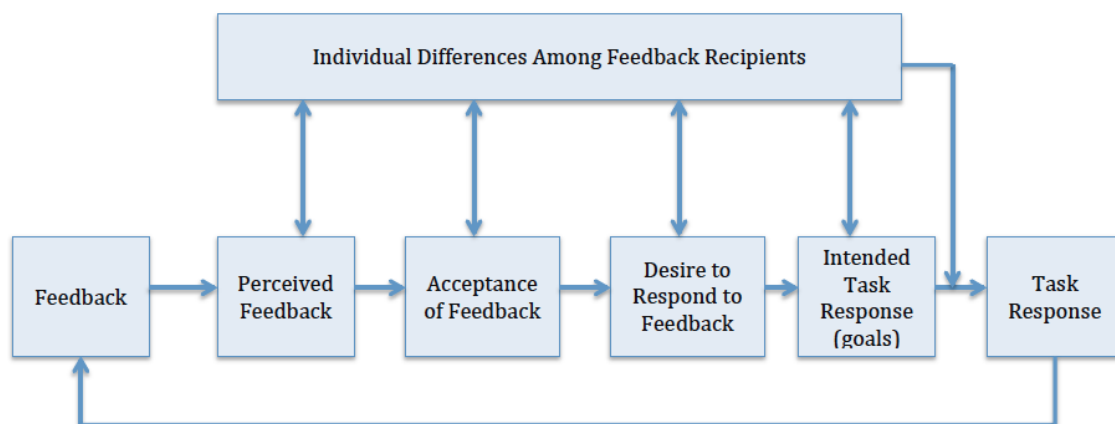
Just as the giving of feedback often fails, feedback seeking is also less than ideal in many situations. There are two general strategies for seeking feedback (Ashford & Cummings, 1983). In one strategy, people monitor their own performance. In the other, they directly inquire about how they are doing from others. Because directly asking others for feedback has greater potential for threatening self-esteem, people are less likely to use this strategy than they are monitoring. When individuals believe they perform poorly, they tend to seek feedback in a way that minimizes negative feedback from others. Underlying these strategies is the "deep-seated motivation to maintain a positive self-esteem" (Larson, 1989, p. 408).

The employee's natural tendency to seek positive feedback and the supervisor's natural

discomfort with giving negative feedback leads to a conspiracy (Larson, 1989). The employee attempts to avoid negative feedback, and in response to these attempts the supervisor softens the feedback so that it does not seem as negative. In these cases, supervisor and employee never confront performance problems, although both may recognize that problems exist. It seems doubtful that this conspiracy can go on forever. More than one employee is abruptly dismissed after a crisis finally brings performance deficiencies to the attention of those above the immediate supervisor. A much more satisfying situation for an organization and its employees occurs when employees feel free both to give and seek feedback.

## Processing of feedback

Once feedback is communicated, the next crucial question is how recipients process the information and respond to it. The feedback process is depicted as a three-part communication process in figure 12.15 (Ilgen, Fisher, & Taylor, 1979). The first issue is whether the recipient accurately perceives the message. The next issue is whether the feedback is accepted. The final issue is whether the recipient desires to comply with the feedback.



Source: Adapted from Ilgen, D. I., Fisher, C. D., & Taylor, M. S. (1979). Consequences of individual feedback on behavior in organizations. *Journal of Applied Psychology*, 64, 349-371.

Figure 12.15: Process Model of Feedback Process

Conceived in these terms, there are numerous opportunities for feedback to succeed or fail. Take, for example, the response to negative feedback. Employees could view these various steps as alternative lines of defense. First, employees see their performance as more favorable than it really is, a distortion that is more apt to occur when the feedback is ambiguous than when it is specific and clear. If the feedback is unequivocally negative and cannot be distorted, then employees go to the next line of defense. They deny responsibility, attributing the performance to extenuating circumstances or the unfairness of the source of appraisal. If employees accept responsibility for the failure, they then devalue the importance of achieving the performance goals that they fail to achieve.

Assuming all these lines of defense are breached, the employees finally set a goal to improve the deficiencies conveyed in the negative feedback. How well they actually improve their performance depends on external constraints such as coworkers, tools, and work environment. The characteristics of the message and the characteristics of the recipients determine how accurately recipients perceive and accept the feedback (Ilgen et al, 1979). The accuracy with which recipients perceive feedback increases as the psychological distance between the source and the recipient decreases. Recipients are more likely to accept feedback from themselves than from supervisors or coworkers (Herold & Greller, 1977; Herold & Parsons, 1985; Greller, 1980; Greller & Herold, 1975). One could also speculate that feedback from a source with whom the recipient is well acquainted is more acceptable than feedback from a less familiar source. Feedback from credible and powerful sources is more acceptable than feedback from sources low on credibility and power. Immediate and frequent feedback is more acceptable than delayed and infrequent feedback. The most powerful determinant of acceptance is the sign (positive or negative) of the feedback. Not surprisingly, positive feedback is accepted more than negative feedback (Stone, Gueutal, & McIntosh, 1984).

Even if feedback is accurately perceived and accepted as valid, the feedback still may not influence the intentions and goals of recipients. The next step in the process is the desire to respond. Recipients are most willing to respond when the feedback conveys information that they are competent and in control of the task. The key to providing negative feedback, then, is to do so in a manner that maintains the self-esteem of the recipient.

#### Feedback in the formal appraisal session

Most organizations require that supervisors hold an annual appraisal feedback session in which they share the appraisal with subordinates and inform them of salary increases and bonuses. Herb Meyer and his associates documented some of the problems of this type of appraisal session in a series of studies at General Electric (Meyer, Kay, & French, 1965). Ninety-two appraisal sessions with a variety of salaried employees were observed. The typical session was 30-90 minutes long and covered 32 performance items. In the average session, praise was given on 19 items and criticisms were conveyed on 13. Praise tended to be general, whereas criticisms tended to be much more specific. According to Meyer et al., there were few constructive responses to criticism, with the average number observed being less than one per interview. Employees tended to view their own performance very positively prior to the sessions and subsequently tended to see their manager's evaluation as being less positive than their self-appraisal. The more criticisms employees received, the lower they performed 10-12 weeks later. Meyer concluded that the traditional comprehensive annual performance appraisal does more harm than good. Praise appeared to have little effect, whereas criticism appeared to lessen future performance, especially for those with low self-esteem.

In light of all the dysfunctional consequences observed by Meyer (and Dilbert), how can one conduct feedback sessions so that the problems are avoided? Meyer advises a split role appraisal system in which one set of appraisal procedures is used for the purpose of developing employees and another set of procedures is used for wage and salary administration. Goal setting and frequent feedback characterizes the developmental appraisal. The other system is quantitative and possesses more of the characteristics of the traditional appraisal. Although many



organizations adopt some version of the split-role appraisal, research does not provide much support for this approach. There is reason to question whether employees can ever not think of the possible implications of feedback for salary, even if salary discussions are put off until other meetings (Ilgen & Feldman, 1983). Also, contrary to Meyer's findings, there is evidence that developing employees in an appraisal session is not necessarily incompatible with discussing salary (Prince & Lawler, 1986; Dorfman, Stephan, & Loveland, 1986).

So what can be done to improve the appraisal feedback session? Maier (1958) distinguishes three styles of conducting appraisal sessions. In the tell and sell approach feedback style a supervisor starts by telling the employees just where they stand and then proceeds to sell the employees on the accuracy of the appraisal. While this method may be appropriate with new hires or with experienced employees who are used to such directive methods (Latham & Wexley, 1981, p. 152), it can degenerate quickly. Much depends on the existing relationship of the manager and the subordinate and the manager's persuasive skills. An alternative is the tell and listen style of performance feedback. Here the manager conveys the appraisal and then listens with understanding to the employee's thoughts and feelings. The success of this style depends on the ability of the manager to counsel and advise. The best method, according to Maier (1958), is what he calls the problem-solving style of performance feedback. The manager starts by recognizing areas of performance in which the employee has done well and then asks if there are areas in which the manager could provide assistance. Hopefully, the employee will mention some relevant problem areas and the discussion can then focus on potential solutions. While discussing the problems, the manager avoids talking too much and instead carefully listens to the appraised. The problem-solving approach makes sense, but it requires the most interpersonal skill of all the feedback styles to successfully implement. It also presumes that the supervisor is open to suggestions. Moreover, problem-solving appraisals seem unlikely to have much of an effect on performance if they occur only once a year in the formal appraisal session (Dorfman, Stephan, & Loveland, 1986).

Past research supports the effectiveness of several aspects of Maier's problem-solving approach to giving feedback.

1. Focus on performance rather than the person. Attitudes toward appraisal sessions appear more favorable if the appraisal focuses on goal accomplishment than the traits of the person evaluated (McConkie, 1979). This assumes that goals were set in previous sessions and the performance of the employee is measured against these prior goals. The following video starts with a good example of a "tell and sell" appraisal session. Note that the focus of the supervisor's feedback is on the person, not the performance or how to improve. Following this is part of what could be described as a "problem-solving interview in which the manager attempts to focus not on how the employee has messed up but what can be done to improve. Listening and participation are crucial elements of this approach.

[http://www.youtube.com/watch?v=kedEM5KWx\\_M](http://www.youtube.com/watch?v=kedEM5KWx_M)

2. Self-appraisal. Another valuable component of a problem-solving approach is that the session focuses on getting the employee to think about his or her own performance. The following two segments from the TV show "Scrubs" highlights in a humorous manner the use of a self-appraisal prior to the performance review. One couldn't call this a problem solving session

...indeed, it is more of a tell-and-sell appraisal and a pretty bad one as well. Nevertheless, it illustrates the use of having the employee go through a self-appraisal prior to the review.  
[http://www.youtube.com/watch?v=09bp\\_\\_4Muh8](http://www.youtube.com/watch?v=09bp__4Muh8)

<http://www.youtube.com/watch?v=1FnkFesZSYk>

Meyer, Kay, and French (1965) report from research at General Electric that the use of self-evaluation is effective in getting employees to process feedback in a less defensive manner and set goals for future performance. Self-appraisal alone does not benefit the process, however, and must occur in the context of a session in which the employee participates in a constructive discussion.

3. Participation. A third element of successful appraisal sessions is participation. Individuals who believe that they have the opportunity to present their ideas or feelings and who believe that the supervisor actively sought their views are more accepting of appraisals than those who are not allowed to participate (Bassett & Meyer, 1968; Burke, Weitzel, & Weir, 1978; Burke & Wilcox, 1969; Dipboye & dePontbriand, 1981; Greller, 1975; Landy, Barnes, & Murphy, 1978). In a meta-analysis of this research, employee participation in the feedback session was positively related to overall reaction to the appraisal, satisfaction with the session, and satisfaction with the appraisal system (Cawley, Keeping & Levy, 1998). Employees also were found to express more motivation to improve as a result of the appraisal and were more likely to evaluate the appraisal as fair and useful. The authors of this meta-analysis also conclude that the strongest positive reactions are to feedback that is value-expressive in the sense that it allowed them the opportunity to voice their opinions and instrumental in the sense that it provides an opportunity to change the appraisal. A danger in using participation is that it could do damage in the hands of a manager who is insincere in wanting input. If the recipient believes that the supervisor already has reached a conclusion and is using participation as a manipulative tactic, allowing voice could backfire.

4. Goal-setting. Finally, problem solving appraisals end with setting of goals for future improvements in performance. The following is a short talk on the SMART approach to setting goals. This topic was discussed in the motivation chapter, but what is described in this video states the essential characteristics of an effective goal set during an appraisal session. They are specific, measurable, action oriented, realistic, and time bound (i.e., SMART).

<http://www.youtube.com/watch?v=y0FkZEzabRk>

5. Quality of the relationship. A factor that is not included in the problem solving approach is the quality of the relationship between the supervisor and employee. Although relatively neglected, this is likely to dominate employee reactions to the appraisal. Evidence of this is provided in a meta-analysis (Pichler, 2012). The review reveals that participation is positively related to the favorability of employee reactions to appraisals but a more important factor is the quality of the relationship. Interestingly, relationship quality was a stronger predictor of employee reactions than the favorability of the rating itself. The authors conclude that "... organizations should be concerned primarily with employee relationships with their managers when it comes to reactions to administrative performance reviews. Performance appraisal interventions and training opportunities should not only focus on improving managers' rating accuracy and communication

of feedback, but on productive communications pre- and postreview between managers and employees” (Pichler, 2012, p. 726).

Points to ponder:

1. As can often occur, consider an employee who is given a negative performance appraisal by his or her supervisor but fails to respond to this appraisal by correcting the deficiencies that the supervisor highlighted. Go through the process of feedback presented in this section and describe how the appraisal feedback could fail at each step of this process.
2. Considering the failures at each step of the process, what could be done to avoid the failure in the feedback process?
3. Why don't employees seek feedback on their performance?
4. Describe a tell-and-sell, a tell-and-listen, and a problem solving appraisal session. Under what condition would each succeed in improving the employee's performance and under what conditions is each more likely to fail?
5. Design a split-role appraisal system for evaluating a professor's teaching performance.

## Conclusions

As useful as performance appraisals are, they often fail in their implementation because of inherent conflicts in the appraisal process. Supervisors often do not relish the thought of evaluating employees, and employees certainly do not look forward to being appraised. To succeed, measures of performance are needed that are relevant to the work, reliable, and practical. A variety of options exist; the one that is chosen depends on the objectives of the appraisal system. Appraisals can focus on the traits of the employee, behaviors exhibited in performing the work, and outcomes achieved. The various aspects of performance are measured through objective and subjective procedures, although practical concerns have led to a reliance in most organizations on supervisory judgments. If subjective measures are used, three options exist: (1) direct evaluations of the extent of accomplishment (graphic scales, BARS, MSS), (2) indirect evaluations in which an evaluation is derived from descriptions (weighted checklist, forced choice), and (3) evaluations involving comparisons among employees (ranking, paired comparison, forced distribution). Supervisors, peers, subordinates, and customers can provide evaluations. Given the variety of approaches that can be taken in measuring performance, organizations are well advised to use a diversity of techniques and to draw from a variety of sources. The correct combination of sources and techniques depends on the demands of the situation.

Raters possess cognitive structures that guide their observation, encoding, interpretation, retrieval, and integration of information and the final judgment of performance. For example, raters could assign employees to the typical good or bad employee category and this categorization could then bias subsequent information processing. Although the attempt to simplify through categorization and other cognitive shortcuts are never entirely eliminated, the harm they can do is reduced somewhat with appraisal systems that encourage the rater to emphasize the facts available on the employee's performance and to rely less on the prior beliefs. In discussing the cognitive factors involved in the rating process it is easy to think of appraisal as limited to what goes on between evaluator and the person evaluated. But the effectiveness of

appraisal systems also depends on contextual factors. A good appraisal system requires effective leadership, motivation, and teamwork and must become a natural part of the culture of the organization. Becoming a part of the culture requires that management supports the system and that supervisors are held accountable for the quality of their ratings. It also requires that the appraisal system fits the nature of the technology. An effective appraisal system and an effective feedback system go hand-in-hand. Improving feedback skills and implementing feedback systems presume that the original appraisals are accurate. Likewise, sound measures of performance are of little use in developing employees unless the information contained in these measures is received, accepted, and acted on by the employee.

Research generally suggests that feedback discussions are more beneficial if they are participative, goal-oriented, and supportive rather than tell and sell lectures. Although it is common for organizations to conduct appraisal sessions only once a year, it is unlikely that any style of feedback is effective if it occurs this infrequently. Performance appraisals play an important role in the management of work in organizations, and changes currently underway in the work place suggest that this role will only grow in importance. There are two trends, however, that are pushing performance appraisal in somewhat different directions. One trend is toward increasing formality and accountability in appraisals. As organizations attempt to succeed in an increasingly competitive world, it has become more important to measure the performance of employees so that their successes can be rewarded and their deficiencies corrected. Civil rights legislation, such as the Americans with Disabilities Act and the Civil Rights Act of 1991, impose even heavier demands on organizations to document the rationale behind important decisions such as the firing, transfer, or promotion of employees. Somewhat inconsistent with the pressures on organizations to bureaucratize their appraisal procedures is the movement toward team-based organizational structures and worker participation. These trends will require appraisal procedures that are conducive to the development of individual employees and the building of effective teams. The development of performance appraisal systems that fulfill these two competing needs is a crucial issue that will require the attention of I/O psychologists in the future.

This chapter began by noting that performance evaluation is perhaps the one human resource management function that is viewed most negatively by employees and managers alike. The traditional approach was to focus on the accurate measurement of the individual's performance for the purpose of feedback, development, and administrative actions such as compensation and promotion decisions. In an attempt to squeeze more value from performance evaluation processes, the focus of researchers and practitioners over the last two decades has turned to a more holistic and integrated view of performance appraisal and feedback. This more contemporary approach is called Performance Management. Rather than focusing solely on the best rating scale or how to conduct an effective feedback session, the advice is to design a Performance Management System that is closely linked to the mission and objectives of the organization and other human resource management systems. This more integrated approach is needed but does not serve as a cure-all for the problems plaguing employee evaluation. As noted in the title of a recent discussion of Management Performance Systems, "Can performance management systems help? Yes, but they sure can hurt too!" (Levy, Herb, Frantz, & Carr, 2012).

## CHAPTER 13: EMPLOYEE TRAINING AND DEVELOPMENT



## Introduction

When things go wrong, a solution that is commonly proposed is training. Consider these three news items.

**\*\*A rash of widely publicized shootings by police of young black men in the United States has led to calls for improved training of police. Take, for example, the shooting of an 18-year-old in Ferguson, Missouri. In August 2015. After nationwide protests and civil unrest in Ferguson, the governor of Missouri (USA) ordered the formation of a state commission that would overhaul police training. The training was intended to improve police-community relationships, reduce police shootings, and help police better cope with the stress of their jobs. The hours spent on training would increase from 48 to 120 hours every three years and would include tactical training in the use of force, how to work with the mentally ill, efforts to eliminate racial bias in profiling, and stress management (Hunn, 2015).**

**\*\*As flight becomes increasingly automated, concerns have been raised that flight crews are becoming overly reliant on automated systems and less capable of acting in a coordinated fashion to deal with unexpected events. An example is Air France flight 442 which crashed into the Atlantic in 2009 while on route from Rio de Janeiro to Paris. All 228 people aboard died. The final report issued by France's aviation accident investigative authority attributes the accident to confusion and poor coordination among the copilots and a "total loss of cognitive control of the situation" (Whitfield, July 6, 2012, [www.flyingmag.com](http://www.flyingmag.com)). The report recommends a change in pilot training that would provide better instruction in dealing with high altitude stalls. The report calls for intensified crew training that would instruct crewmembers in how to better coordinate their actions and rely less on automated flight-control systems. Another recommendation is to train co-pilots in the mindset to serve as acting captains (Pearson, Pasztor & Michaels, 2012).**

**\*\*Chronic unemployment is epidemic among minority groups in the United States and other countries around the world. Better training is often seen as the solution. An example is STRIVE international. This is a workforce development nonprofit established in 1984 in New York City that emphasizes teaching the disadvantaged and chronically unemployed the attitudes needed to become a productive member of the workforce ([www.striveinternational.org](http://www.striveinternational.org)). Trainees participate in four week sessions in which they are taught soft skills such as how to follow instructions, learn from criticism, dress professionally, work in teams, show up for work on time, conduct a job search, and interview. The course makes heavy use of role playing and team based assignments, lectures, seminars, and one-on-one counseling. Instructors use a confrontative style. Trainees are held strictly accountable and are fired from the course if they violate course principles and rules. Follow-up support is provided for two years after placement. Proponents of STRIVE point to the high placement and retention rates of trainees as evidence of the program's effectiveness (<http://www.hofstra.edu/pdf/academics/colleges/hclas/cld/cld-rlr-fall11-jobsandtraining-defreitas.pdf>).**

All three of these examples point to the reliance on training to solve major problems. Regardless of whether it is a tragic accident, unemployment, or police brutality, the common diagnosis is that an important cause is a lack of the knowledge, skills and attitudes required for the tasks. The common remedy is a training program that instills what's missing. Training is an integral part of

the strategy that corporations use to maintain competitiveness (Perez, 2014). U.S. corporations are investing billions of dollars each year in training, developing in-seat and online programs that rival the four-year programs in university business schools, and are rewarding employees for upgrading their skills and acquiring new ones. Spending on training in 2013 was over \$70 billion for U. S. corporations and over \$130 billion worldwide (Bersin, 2014). After the recession years of 2008 and 2009 when there were declines, U. S. spending on training increased steadily over subsequent years: 2% in 2010, 10% in 2011, 12% in 2012, and 15% in 2013. The largest investments are for training in management and leadership (35%): “As Millennials take on more responsibility, companies need to build leadership skills at all levels and in all geographies around the world” (Bersin, 2014). In the learning organization employees share information, assist each other in learning tasks, experiment, and take chances. Learning is a core value driving a continuous acquisition of knowledge and skills that enables the organization to innovate and gain a competitive edge.

The professed importance of training and the large investments of money in these activities are warranted on the basis of evidence that organizational performance is related to the extent to which organizations engage in training activities (Russell & Terborg, 1985; McNamar, Parry, Lee, & Pitt-Catsouphes, 2012). The more days that organizations devote to training, the more effective the organization as measured with productivity, rate of innovation, and rate of turnover (McNamar et al, 2012). Opportunities for learning have become incentives that are used to create a more engaged, motivated, and committed workforce. A psychological contract now exists in which employees expect that the employer will invest in the development of their knowledge and skills in return for their contributions to the organization (McNamar et al, 2012).

An example of a large corporation that invests a tremendous amount of time, effort, and money in training and appears to do the job quite well is the Disney Corporation. Go to this link to see a video clip is from a 1980s documentary that provides a glimpse at how the Disney theme parks go about training employees:

<https://www.youtube.com/watch?v=sWK9RwGTWNA>

The video makes the important point that in a strong culture such as Disney training includes not only teaching job skills (e.g., the spiel that’s given to passengers on the jungle ride) but also the values of the organizations. Disney’s training is probably the exception rather than the rule. Despite the potential importance of training to the organization’s bottom-line, the sad truth is that the large sums spent on training are often wasted as the result of the haphazard manner in which training and education are undertaken (check out this Dilbert cartoon – it is not that far from the truth when it comes to the unsystematic and casual way many organizations approach training: <http://dilbert.com/strip/2003-11-20>). Fortunately, there are ways of designing, implementing, and evaluating training that allow employers to obtain a good return on their investments. This chapter reviews the research of I/O psychologists and provides recommendations.

### An Instructional Systems Model of Training

A systems approach that is likely to yield a greater return than the typical approach is Goldstein and Ford’s systems model of training (see figure 13.1).

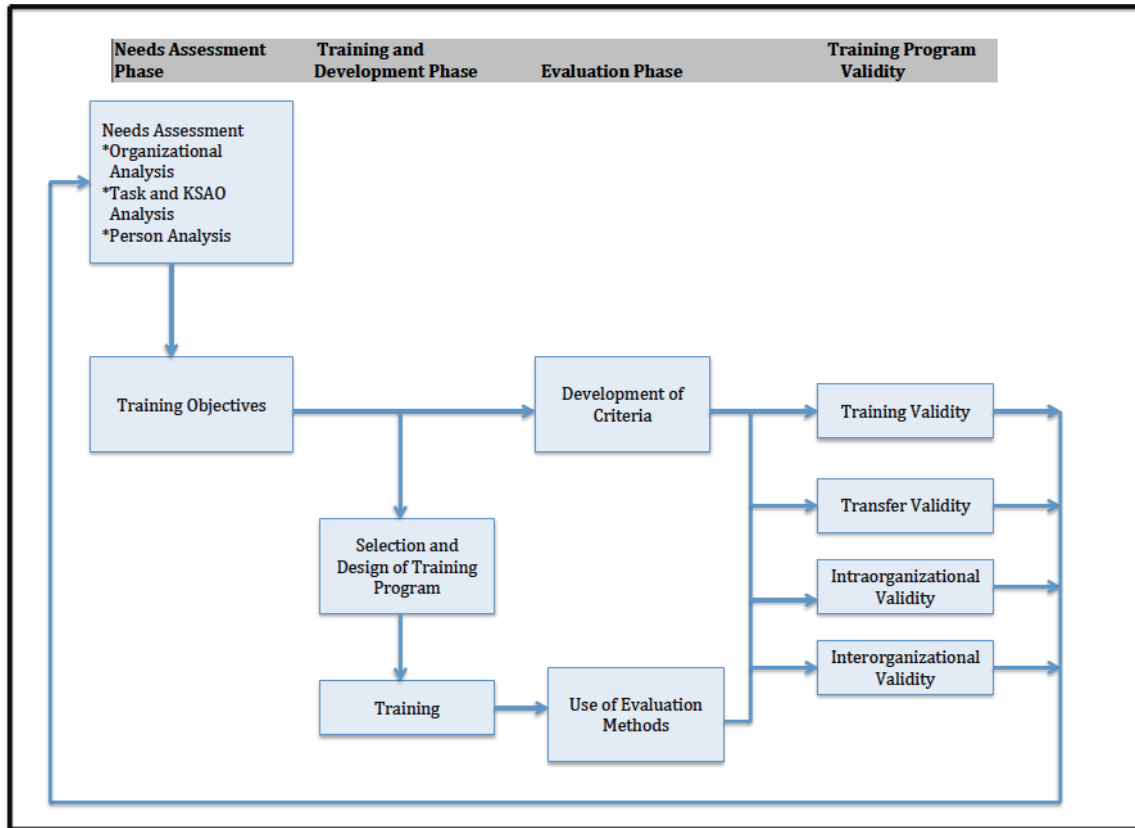


Figure 13.1: Goldstein and Ford  
Instructional Systems Model of Training

The basic assumption of this model is that training achieves the best results when it consists of an orderly, planned sequence of events. The process starts with an assessment of needs and the specification of training objectives, followed by the careful design and implementation of a program, and culminating in the evaluation of how well the training achieves the objectives. The model also presents training as a *subsystem* that cannot stand alone but must take into account the larger organization and the world outside the organization.

Several other key characteristics of this model are:

- \*Training programs need continual evaluation and modification. From a systems perspective the design of a training program is never finished. The organization is continually involved in updating and revising to better achieve objectives.

- \*Different training media are needed to meet different conditions. The specific media of training (e.g., lecture, role playing) depend on the objectives, the trainees, the task, and a variety of other variables.

- \*A research orientation is required. An investigative approach is taken in which the program is evaluated scientifically and the training is continued only if it achieves the program's objectives.



\*Training is part of a larger set of interacting systems. The criteria used in evaluating training programs are not absolute but are determined by the other subsystems within the organization. For instance, a change in the management philosophy of the organization or the values of society necessitates a change in the type of training. Although many questions remain unanswered, past work provides some clues on the best way to train employees. Let us examine each of the phases in the model and some of the lessons learned from past research.

#### Points to ponder:

1. Although organizations would greatly improve their training and development of employees by following the systems model presented by Goldstein and Ford, this model is more of an ideal than a reality. Why do you believe that human resource managers and others responsible for training often do not follow all the individual stages in this model?
2. Several changes are occurring in the demographics of the workforce. Older workers will constitute a larger proportion of the workforce. Also, the proportion of workers who are female, from ethnic minorities, and immigrants will also increase. What are the implications of these demographic changes for training in organizations?
3. The top management of an organization is alarmed that female employees have raised claims of sex discrimination against them. Management approaches you to help them plan a training program to reduce discriminatory actions on the part of male managers. In responding to this request, how would you use the systems model outlined here to plan and design this training?

#### Needs Assessment

The first step in the model is the most important in many respects but is also the most neglected (Ostroff & Ford, 1989). To make the best use of training dollars, a careful training need analysis is required to determine where changes are needed and whether training fulfills these needs. The following equation captures the essence of training need assessment (Moore & Dutton, 1978).

Training Need = Standard or Present or Desired Performance  
Minus Actual Performance

The more the present or actual performance falls below the standard or desired performance, the greater the need for training. In assessing training needs, information is gathered on the organization, the task, and the people performing the tasks (McGehee & Thayer, 1961).

#### Organization training needs analysis

This type of analysis identifies the needs for training by taking the organizational goals and determining how the organization is performing now and how it is likely to perform in the future with regard to each goal. It is concerned with the "objectives, resources, and allocation of those resources of the whole organization (McGehee & Thayer, 1961, pp. 25-26). Consistent with the idea that training is a subsystem that must fulfill objectives of the larger system, the logical place to begin is by assessing how well the organization is currently performing. A variety of data are used, including how well the organization performs in terms of its major goals (profits, service) and the efficiency with which it achieves these goals (cost of labor, cost of materials, quality of

products, utilization of equipment, distribution costs, waste, down time, late deliveries, and repairs).

An organization analysis takes into account not only the *current* state of affairs but also what the organization will need to do to handle *future* technologies and markets and the changing characteristics of workers. Employers not only inventory the current skills and knowledge possessed by employees but also predict future needs. As part of these projections, employers estimate the number of employees expected to leave to identify the gaps in employee skills that need attention in future hiring, transfers, and training. They project possible changes in the technology of the tasks that employees perform, as well as changes in customer tastes, the products and services of competitors, regulations and laws, and other events that might require retooling of employee knowledge and skills. The forecasting of future changes should be based on research. Also, the group problem solving techniques discussed in the chapter on groups and teams are valuable in estimating what may occur in the future.

Forecasts of the future are always speculative and should be accompanied by a healthy dose of skepticism. For instance, a survey conducted by the Georgetown Center for Education and the Workforce projected that only five percent of entry level workers in the decade ahead will need algebra or higher level math skills. Based on these projections, a New York Times commentator questions whether “the math we learn in the classroom has any relation to the quantitative reasoning we need on the job. .... Even in jobs that rely on so-called STEM credentials — science, technology, engineering, math — considerable training occurs after hiring, including the kinds of computations that will be required. Toyota, for example, recently chose to locate a plant in a remote Mississippi county, even though its schools are far from stellar. It works with a nearby community college, which has tailored classes in ‘machine tool mathematics’” (Hacker, 2012). A podcast from National Public Radio provides another interesting discussion of the debate on the need for algebra see

<http://www.npr.org/templates/story/story.php?storyId=101298505>)

The idea that schools should drop algebra seems foolish and shortsighted. As pointed out by Albert Shanker (1992), the lack of algebra-use on the job “Maybe the fact that so few of our workers use math is a symptom of something wrong with the way our workplace is structured rather than something wrong with teaching algebra to our youngsters” (p. E7). Moreover, to only look at current needs and to ignore the future is to risk obsolescence in the rapid technological change characterizing today's world. Moreover, to only look at current needs and to ignore the future is to risk obsolescence in the rapid technological change characterizing today's world.

### Task training needs analysis

Knowing where the organization succeeds and fails in achieving its objectives sets the stage for a task analysis to determine the task behaviors needed to perform the work effectively. A typical beginning point is to describe tasks in the job using procedures discussed in the chapter on work analysis. From these descriptions an analyst decides what knowledge, skills, abilities, and orientations (KSAOs) are required for performance of the tasks. Knowledge is defined as an organized body of factual or procedural information that is applied in performing the job. Skill is

the psychomotor capability to perform job operations. Ability is the cognitive capability necessary to perform the job. Employee orientations refer to specific temperaments or attitudes that are needed in the job. For instance, a child care worker is expected to like children and a sales clerk is expected to tolerate rude customers.

A useful technique in task analysis is the critical incident method that was discussed in the chapters on performance appraisal and job analysis. Asking employees to describe incidents in which they failed allows an identification of deficiencies and the targeting of KSAOs for training (Folley, 1969). Goldstein, Macey, and Prien (1981) recommend forming a panel of five to eight experts and asking them to answer the following questions:

1. What are the characteristics of good and poor employees on (name of task)?
2. Think of someone you know who is better than anyone else at (name of task). Why do they do so well?
3. What does a person need to know to (name of task)? Recall concrete examples of effective and ineffective performance and discuss the causes or reasons.
4. If you hire a person to perform (name of task), what kind of KSAOs do you want the person to have?
5. What do you expect the person to learn in training that would make him or her effective at (name of task)?

### Person training needs analysis

The task analysis identifies how employees should perform the work, whereas the person analysis evaluates the extent to which employees are currently performing their tasks effectively and whether they have the KSAOs necessary to do this. Among the ways of performing this assessment are (1) rate the employees on their KSAOs; (2) have employees rate themselves on their KSAOs; (3) gather objective data on employee performance, such as sales volume or quantity produced; and (4) test employee proficiency with written tests (Wexley & Latham, 1981). The person analysis provides a variety of information that feeds directly into the later design and implementation of training. The data gathered allows an identification of the content of the training program, the methods used to present this content, who is likely to benefit from training, and possible actions to gain trainees' acceptance. A person analysis also evaluates the trainability of potential trainees. Trainability is the likelihood of benefiting from a program and is a function of the trainee's task ability, motivation, and perceptions of the work environment. Measures of trainability are based on a variety of sources including test scores (Roth, Buster & Bobko, 2011), performance in mini-courses (Reilly & Israelski, 1988; Reilly & Manese, 1979), performance on early training trials (Gordon & Cohen, 1973; Gordon & Kleiman, 1976), or actual time to complete training relative to a standard time taken by previous trainees (Gordon, Cofer, & McCullough, 1986). An assessment of trainability provides the basis for tailoring of training to the trainee and preparing the trainee for the program. It also possible that an assessment of trainability leads to the decision to not even attempt training because of low ability or motivation.

## An example of a training needs assessment

A study conducted with 200 employees and their supervisors in a hospital illustrates a typical needs assessment (McEnergy & McEnergy, 1987; see table 13.1). In this case, the employees rated the extent to which each of several knowledge, skills, and abilities (KSAs) is required in the job and their level of performance in the job for each of the KSAs. The supervisor of the employees also rated them on the same scales. A need for training was identified wherever performance on the KSAOs fell below the level required.

Dimension	Percentage identifying need	
	Supervisor	Subordinate
1. Prioritizing	41	24
2. Scheduling	33	21
3. Following up	39	35
4. Recognizing problems	42	29
5. Gathering information	35	29
6. Analyzing problems	38	30
7. Making decisions	42	28
8. Adopting new approaches	44	30
9. Coordinating	29	22
10. Keeping up to date	27	36
11. Achieving results	29	30
12. Enforcing rules	22	21
13. Writing	32	25
14. Presenting verbally	32	34
15. Being aware of structure	33	30
16. Selecting employees	34	31
17. Conducting performance reviews	32	23
18. Developing subordinates	39	24
19. Instructing employees	28	24
20. Assigning work	31	22
21. Delegating tasks	38	22
22. Involving subordinates	31	16
23. Handling grievances	44	26
24. Maintaining good atmosphere	34	24
25. Maintaining job knowledge	27	22
26. Handling problem subordinates	43	30
27. Providing feedback to subordinates	38	30
28. Making non-discriminatory decisions	18	8
29. Providing safe environment	17	18

Table 13.1: Percentage of Managers and Supervisors Identifying Training Needs

This study not only illustrates a typical needs assessment, but also demonstrates the limitations of relying on subjective reports in making these assessments. In this particular study, employees report less need for training than do their superiors on 25 of the 29 KSAOs! The mean correlation between the rating of the manager and the superior was a mere .04 indicating a very low level of agreement on the areas for training. Other evidence from this study suggests that superiors allow their own needs to color their perceptions of their subordinates' training needs.

It is not uncommon for potential trainees to differ from others in rating training needs. Take, for

example, this survey of college students and employers:

<https://www.insidehighered.com/news/2015/01/20/study-finds-big-gaps-between-student-and-employer-perceptions>.

Students were more than twice as likely as employers to indicate that they are well prepared on key KSAOs including oral communication, written communication, critical thinking, and being creative. The lesson is to use more than one method in gathering data on the needs for training rather than relying on just one.

Only about 27% of employers in one survey indicate that they conduct formal needs assessments in determining needs for management training (Saari, Johnson, McLaughlin, & Zimmerle, 1988). Rather than selecting instructional methods that fit learning objectives, organizations too often choose a method on the basis of superficial considerations, such as the current fad or an attractive brochure. A better approach is to base training on a systematic, thorough analysis of task requirements, employee KSAOs, and organizational factors. As the reader will see in the subsequent discussion, the needs analysis sets the stage for all the subsequent phases and without it, training is unlikely to achieve the intended results. After all, if employers do not know where they are going in their training, how will they know if they have arrived?

#### Points to ponder

1. In what situations do you think a needs analysis might lead to the conclusion that training is not needed even though there are deficiencies in KSAOs that need correction?
2. In designing a training program, what would you include in organizational analysis?
3. What do you believe determines trainability? Are there some people who are simply untrainable? What is the problem with these individuals?
4. Why don't more employers conduct systematic, thorough needs analyses when implementing training programs?

#### Specification of Instructional Objectives

A needs assessment sets the stage for specifying the objectives of the training program. Goldstein (1993) observes that "the needs assessment tells the trainer where to begin, and the specification of the objectives tells him the completion point of the program" (p. 79). Prior to stating instructional objectives, organizations should enter into a problem-solving process in which they consider the deficiencies in performance identified in the needs assessment and decide whether training is required (Mager & Pipe, 1970). Assuming that training is the preferred solution, then the next step is to set specific objectives for instruction.

#### Gagne's learning outcomes

In setting objectives, the first concern is to identify the learning outcomes that are the target of the training. Gagne (1984) distinguishes five types of learning outcomes:

Verbal information. This is also referred to as *declarative knowledge* and exists in the form of

“facts” that allow a person to declare or state something. Such information often comes as meaningful packages of items. Asking a student in a driver’s ed course to identify the various parts of an automobile (e.g., steering wheel, brake, and shift stick) is an example of verbal information.

#### \*Intellectual skills.

This is also referred to as procedural knowledge and consists of a chain of concepts, rules, and principles tied together through “if then” statements. In learning to identify different geometric shapes, a possible rule is that “if there are three sides, then the geometric shape is that of a triangle; if there are four equal sides and four right angles, then the geometric shape is that of a square.” Learning an intellectual skill is learning “how to do something of an intellectual sort” whereas learning verbal information is learning “that something exists or has certain properties” (Gagne, Briggs & Wager, 1988, p. 44). For example, learning to identify different geometric shapes, rectangles, triangles) is an intellectual skill, whereas memorizing the definition of each is the learning of verbal information. Learning intellectual skills presumes that the concepts that constitute the procedures are known (what the terms in the above example mean such as side, angle, equal, and three). Learning intellectual skills involves more than memorizing strings of words, however, because the learning of a principle is demonstrated only when one can apply it in a variety of situations (e.g., can use the rule to correctly spell a variety of words containing i and e).

#### \*Cognitive strategies.

This type of learning consists of the strategies that allow a person to learn, think, and solve problems. The primary difference between this and intellectual skills is that intellectual skills are concerned with structured problems, whereas cognitive strategies are concerned with novel problems. An example of a cognitive strategy is solving an algebra problem. The learner would need first to identify the essential aspects of the problem and recall the relevant intellectual knowledge (e.g., procedures of multiplication, subtraction, division). The recalled procedures are then combined to form a new, higher order principle that allows the solution of the problem. In studying the materials of a history course, students recall what was said in class and written in the text (e.g., important dates) as well as learn intellectual skills in the form of procedures associated with the course (e.g., how to use economics to understand historical trends). They also learn strategies for how to understand and retain the material. One student might associate events in history with visual images of these events or the people involved. Another student might organize the material chronologically. In both examples, the students use a strategy to master the material that may generalize to the learning of other material. Essentially they learn how to learn, and the cognitive strategies involved are often more important than the specific facts or procedures acquired in the course. The learning of cognitive strategies does not stand alone, however, but presumes that the learner has acquired the intellectual skills and verbal information that are prerequisite to acquiring these strategies.

#### \*Motor skills.

These are the abilities to perform organized motor activities such as riding a bicycle, tying one’s

shoes, or driving a car. An important characteristic of a motor skill that distinguishes it from other types of skills is that practice results in gradual improvement over time.

#### \*Attitudes.

These are predispositions to make certain choices or to engage in particular acts. Commercials are oriented to changing our attitudes toward products. Schools attempt to instill certain attitudes about hard work and respect for others. Likewise, companies often attempt to instill in employees a common set of values, such as providing high quality services to clients. Organizations attempting to build strong cultures often broaden the objectives of training programs to include not only technical skills but also the attitudes and values of the culture (Feldman, 1989). Indeed, training in many corporations is the primary socialization process for new hires. An example is McDonald's Hamburger University in Oak Brook, Illinois, where new franchise owners are taught not only a variety of skills crucial to running the business but also are indoctrinated in the McDonald's philosophy:

[http://www.aboutmcdonalds.com/mcd/corporate\\_careers/training\\_and\\_development/hamburger\\_university.html](http://www.aboutmcdonalds.com/mcd/corporate_careers/training_and_development/hamburger_university.html)

Other examples are found at Disney Land and Disney World where the training program for new employees stresses the importance of maintaining the magic of the theme park in interactions with guests (Lipp, 2013).

#### Stating instructional objectives

The trainer should avoid expecting too much or too little of trainees. A common error is to claim that the training will achieve all sorts of lofty goals. A consequence is that both instructor and trainee are confused about what constitutes successful completion of the training. A useful objective specifies what the trainees need to do to demonstrate that they have acquired the KSAOs that are the focus of the training. Objectives come in two general forms. A performance objective states what the trainee is able to do at the end of the training, whereas a learning objective states what the trainee will know (Mager, 1972, 1973; Mager & Pipe, 1970). In training an auto mechanic to clean and repair a carburetor, a possible performance objective is to replace worn and defective parts of a carburetor, whereas a learning objective might be to list the parts of the carburetor from memory. Both types of objectives are written using doing verbs (e.g., say, count, place, point out, install, complete, fix, replace, solve) rather than knowing verbs (e.g., understand, appreciate, develop an attitude for, see the value of increase, grow, recognize). Rather than stating that the student will understand the causes of accidents in the workplace, the trainer states that the student will list the top reasons for accidents in the workplaces. According to Mager (1972), an instructional objective not only states something that is observable, but it also defines the level of performance needed to achieve the objective. In stating objectives for a training program to improve safe work practices, for example, the objective is that the trainee correctly identifies three out of four solutions to work-related back injuries.

Training experts who disagree with Mager advise against always stating the performance criterion when writing instructional objectives (Gagne, Briggs, & Wager, 1988). While specific

instructional objectives are warranted, it is important to avoid stating overly narrow objectives. A common problem is focusing in the statement of objectives on mastery of verbal information to the neglect of intellectual skills and cognitive strategies. For instance, becoming proficient in the scientific method requires the acquisition of skill in designing experiments to test hypotheses. Take, for example, an instructor of a research methods course who limits the objectives to successful recall of specific information or the definition of terms and overlooks the problem solving that is required in research. The solution is to carefully assess the learning outcomes (i.e., verbal information, intellectual skills, cognitive strategies, motor skills, attitudes) that are the desired target of the program and make sure the objectives reflect all of the outcomes.

#### Points to ponder:

1. Training is often distinguished from education. What do you think are the differences? What do training programs more often emphasize in the way of learning outcomes that are emphasized less in education? What do educational programs emphasize in the way of learning outcomes that emphasized less in training programs?
2. What are the potential advantages and disadvantages of stating highly specific, measurable objectives for training?

#### Training and Development Phase

Four crucial issues are addressed in the design of an instructional environment. The first is how to maximize performance in the training itself. This requires knowing the research on motivation and learning. The findings of this research provide useful guidelines for ensuring that trainees acquire KSAOs as efficiently as possible and retain what they learn. Performance in the training is not as important, however, as whether trainees take what they learn in the classroom and use it in the work place. Thus, the second issue considered here is how to facilitate transfer of training to the work environment. A third issue is the on-the-job and classroom training methods that are used in the training program and the factors that are considered in the choice among these alternative methods. Finally, because well-conceived training programs often fail as the consequence of the way trainers conduct them, the factors influencing the implementation of training are examined.

#### Incorporating the findings of learning research

A huge amount of research conducted over the last century provides useful insights into how people learn. Unfortunately, the laboratory experiments allowing for the rigorous testing of hypotheses provide a weak basis for generalizing to complex organizational tasks. Those conducting research on training also bear some of the responsibility by not attempting to build bridges between life and lab. Despite the dangers of generalizing the findings of laboratory research to organizational training, however, basic learning research provides useful insights that can serve as a source of suggestions on how to improve employee instruction (Glaser, 1990). Much of what is discussed here concerns the conditions that facilitate initial acquisition of what is learned. As later discussed, the same factors do not necessarily ensure what is learned will transfer to the work place. In some cases, what facilitates acquisition hurts transfer.



\*Provide advance organizers.

Ausubel (1960) introduced this concept over 60 years ago and is now widely accepted as a simple, effective way to facilitate the initial acquisition of material (Preiss & Gayle, 2006). An advance organizer is an outline or list of basic learning points that is provided to trainees in advance of the training. The advance organizer is not a detailed summary of the material but instead an abstract framework. A good set of advance organizers provides a cognitive scaffold for the learner and can help the trainee process information and later retrieve and apply what is learned. Organizers exist in many forms including paragraph headings, graphics, outlines, and tags of key terms in the margin of a text. The ideal is that the advanced organizer triggers an in-depth processing of the information in the training program. To the extent that the advanced organizers are a crutch that discourages deeper processing, the trainee may well show superior acquisition of the information but poor application of what is acquired to the workplace.

\*Practice and recite.

The old adage "practice makes perfect" is applicable here. Basic research has demonstrated repeatedly that if the material learned is information (e.g., memorize the parts of a machine), then students should practice and recite that material. Similarly, if the training is focused on acquisition of skill, then the students should not just learn about what to do but should demonstrate the skills. The learning curves are likely to differ from job to job, with steep acquisition possible for easy jobs and slow accumulation for difficult jobs (McCormick & Ilgen, 1980, pp. 234-235). Also, learning curves are likely to vary in shape with the type of response measured (e.g., speed of response, quantity, errors). Some research demonstrates that practice should continue to the point of overlearning. In other words, practice continues past the point at which no additional gains are made (the asymptote on the learning curve).

The benefits of overlearning are clearly shown in an experiment in which reserve soldiers are trained to disassemble and reassemble an M-60 machine gun (Schendel & Hagman, 1982). A training trial is a complete disassembly and reassembly of the gun, and soldiers receive training until they perform the task without error (the criterion). The soldiers are assigned at random to one of three groups. One group receives overtraining. For example, if two training trials are required for an individual to reach criterion (one errorless trial), then that soldier receives two additional training trials after reaching criterion. Another group receives the same amount of additional training as the over-trained group, but they receive this additional training in the form of a refresher course midway through an eight-week period. Thus, if a soldier in this group takes two trials to achieve criterion then two additional refresher trials are provided four weeks later. A control group is simply trained to criterion and then receives a retention test at the end of eight weeks.

If you are curious about what an M-60 machine gun is, check the following training film from the Army.

<http://www.youtube.com/watch?v=VXzkHxwaoV4>

After eight weeks, all three groups of soldiers disassemble and reassemble the machine gun until

they achieve one errorless trial. The overtrained group performs better than the refresher and control groups. The findings of this experiment show that overtraining is highly effective and efficient in the learning of complex skills. A recent survey of over 50 experiments confirms that overlearning is an effective strategy, although more so for cognitive than for physical tasks (Driskell, Willis, & Copper, 1992). There are potential problems with an overlearning strategy. A point of diminishing returns is eventually reached where increasing the number of overlearning trials fails to improve retention. Over learning may even harm performance on simple tasks if repetition leads to boredom and a decline in motivation. If refresher training is not provided, the benefits of overlearning on retention "dissipate to zero after 5 to 6 weeks" (Driskell et al, 1992, p. 621).

\*Distribute practice.

A basic issue in designing a training program is whether practice is massed or distributed. In the former case, practice is continuous without a break. To illustrate, imagine two students studying for an exam. One does not start studying until the night before the exam and spends from 9 pm until midnight going over the material. The other student spends 30 minutes a day six days prior to the exam studying the material. The former student is using a massed practice strategy whereas the latter is using distributed practice. The total amount of time spent studying is the same, but the review and rehearsal of the material is spread out with distributed practice and crammed into one-time period in the massed practice.

Massing practice sessions often leads to better short-term performance than does spacing, but massed practice leads to poorer long-term performance of the task. If the reader has ever crammed for an exam and then found that a week after the exam that most of what was learned is forgotten, then he or she has some sense of this effect. Although one can find exceptions to the rule in the large body of research on spacing (Adams, 1987), the best advice is to provide distributed practice and generally avoid massed practice.

\*Learn the whole-task on complex and organized tasks.

The issue of distributed practice leads naturally to the question of whether it is better to teach the whole task or to use part task learning. The latter involves subdividing the task into separate components, teaching them separately, and then later bringing these components together in a separate session. Pure part training occurs when each component is taught in a separate phase of the training and then all components are combined in a final phase. Progressive part training occurs when new components are combined with the previously taught components in each successive phase of training until all parts are put together in the final phase.

Whether one should try to learn the whole task or learn separate parts of the task depends on the complexity and organization of the task (Blum & Naylor, 1968). Task complexity refers to the difficulty of each task component considered separately. Task organization refers to the extent to which components of the task are interrelated. There is evidence that whole-task training becomes more efficient than part-task methods when the task is both highly organized and complex, whereas the part method becomes increasingly superior to whole-task training with tasks that are low in organization and high in complexity (Blum & Naylor, 1968). An example of

a task that is high on both organization and complexity is driving a standard transmission automobile. Given that the task involves an interrelated sequence of actions, it is more efficient to learn these acts as sequences rather than learning them as individual tasks (e.g., using the brake, using the clutch, steering the car, shifting gears). An example of a task that is low on organization is the game of baseball. In this case the trainee needs to learn the various subtasks of baseball independently (e.g., catching, batting, and pitching). Each subtask (e.g., batting) is a highly organized task that is best learned as a single interrelated sequence of acts. For example, in learning to bat, it is better to practice the entire activity rather than devote separate sessions to standing at the plate, keeping your feet apart, crouching, watching the ball, etc.

\*Set goals.

One of the more consistent findings in the I/O literature is the effect of goal setting. Individuals exhibit higher levels of performance when they are given specific or hard goals than when they are given ambiguous or easy goals. The facilitative effects of a goal require that acceptance of the goal by the trainee and feedback. Goals direct attention, mobilize effort, encourage task persistence, and facilitate the development of task strategies (Locke et al, 1981). All of these consequences have obvious benefits for the learning of a task, but there are limits. Some evidence suggests that goals specifying how well the trainee should perform are most beneficial in the later stages of learning when the responses are so well learned that they are automatic (Kanfer & Ackerman, 1989). Earlier in the process, when the trainee must devote attention to task demands, difficult goals can be distracting.

\*Give positive reinforcement.

Based on the principles of instrumental (operant) conditioning, positive reinforcement should be given to a trainee immediately after each acceptable response. In the case of complex skills, the behavior of the trainee is shaped through reinforcing successive approximations to the desired response. The first response is a crude approximation of what is wanted, but the trainer provides positive reinforcers (e.g., praise) for those behaviors that approximate the correct response. With each trial, the reinforcement becomes more selective and contingent on producing a closer approximation to the desired response. Once a response is mastered, research on instrumental conditioning supports shifting to intermittent or partial schedules of reinforcement to maintain higher rates of responding.

Although there are useful applications of the research on operant conditioning, it is now generally accepted that reinforcement does not facilitate learning through a simple stamping-in process but is instead mediated by complex cognitive events. Moreover, administering reinforcement in the same manner that a pigeon or rat is reinforced in the lab is often impractical in organizational training environments. If an instructor tossed candy to reward good comments the students might initially talk more, but they would eventually see this "contingent reinforcement" as manipulative or at best silly. The application of the behavioral approach to learning to the workplace is called Behavioral Modification (BMod) and is also discussed in the motivation chapter of this text. A common application is in training employees to stop unsafe behaviors and to exhibit safe behaviors.

\*Give knowledge of results (feedback).

Feedback can either come from the task itself or an external source of information on performance. Performance during training is usually better if trainees are provided with specific feedback on how well they are doing rather than with no feedback. Knowledge of results in training seems to improve performance as the result of providing information on correct performance as well as increasing the motivation of the person to succeed on the task. Research provides some insight into the types of feedback that are helpful in improving task learning and performance (Annett, 1961). Generally speaking, feedback of successes is more effective than feedback of failure, specific feedback is more effective than general feedback, immediate feedback is more effective than delayed, and more feedback is better than less. There are exceptions to each of these suggestions and there is a point of diminishing returns in providing feedback. For example, learning can suffer if feedback is so specific and so frequent that it overloads the recipient with information. Imagine, for instance, learning to play golf with an instructor who provides detailed feedback on every single move. Continuous feedback of this nature is distracting and might arouse considerable anxiety and self-consciousness.

\*Provide models.

Research on behavioral modeling is stimulated largely by criticisms of a radical behavioral view that describes all human learning as under the control of reinforcement. Among the most influential of these critics is Albert Bandura (1986) in his social learning theory. According to this theory, people do learn from direct reinforcement of their behavior, but they more often learn through observing others. The technique of behavioral modeling is based on social learning theory and consists of providing trainees with models who exhibit the desired performances. An assumption underlying this technique is that observational learning is largely an "information-processing activity in which information about the structure of behavior and about environmental events is transformed into symbolic representations that serve as guides for actions" (Bandura, 1986, p. 51). Consequently, models are provided that catch the attention of trainees and that allow the learner to convert what they observe into symbols. Essential learning points are summarized and presented in a form that facilitates the trainees' encoding, storage, and retrieval of what they observe. Learning points are similar to instructional objectives and are the key behaviors acquired. Some evidence shows that trainees who generate their own learning points learn more from observing the model than trainees whose instructors provide the learning points (Hogan, Hakel, & Decker, 1986).

\*Make learning a team effort.

Research has accumulated over the last three decades on the relative effects of teaching individuals, as opposed to cooperative learning, where students work in small groups and help each other learn. Cooperative learning appears more effective than individual approaches to learning if individual trainees are held accountable and group rewards are provided (Slavin, 1983). One reason that this approach is successful is because of the high performance norms that

emerge. These norms support group members in encouraging and assisting each other in learning the task.

Most of the work on cooperative learning uses elementary and secondary school children. In one of the few demonstrations with adults, soldiers who train as individuals with computer-assisted instruction (CAI) are compared to those who are trained in pairs with the same CAI materials (Dossett & Hulvershorn, 1983). The group learning in this case is identical to the individual learning except that the trainees in the group condition sit at the terminal as pairs rather than as individuals. Training pairs of soldiers results in 25% faster learning of the material than training individuals. A second study finds that training pairs is most effective when one member of the pair is highly competent.

### Gagne's model of instructional events

The designer of a course should structure the course based on the cognitive and behavioral events that define the learning process. Learning involves the following eight steps in Gagne's model:

1. Attention determines the extent and nature of reception of incoming stimulation.
2. Selective perception (sometimes called pattern recognition) transforms this stimulation into the form of object features
3. Rehearsal maintains and renews the items stored in short term memory.
4. Semantic encoding prepares information for long-term storage.
5. Retrieval, including search, returns stored information to the working memory or to a response generator.
6. Response organization selects and organizes performance.
7. Feedback provides the learner with information about performance and sets in motion the process of reinforcement.
8. Executive control processes select and activate cognitive strategies; these modify any or all of the previously listed internal processes.

Instructional events are external conditions incorporated in the training that support and facilitate each of the internal learning processes listed above. The type of instructional event used depends on the learning outcomes that are the objectives of the training. Take, for example, the instructional events used to aid retrieval (step 5 above). If intellectual skills are the focus, then provide examples of how the intellectual skills are applied in different contexts. If verbal information is the focus, then integrate the information with larger bodies of knowledge and provide images and mnemonics to facilitate later recall. If motor skills are the focus, then give the trainees feedback and have them practice.

Gagne (1984) proposes that the conditions you incorporate in a training program to facilitate learning depend on which of the five learning outcomes previously discussed are of greatest concern. The learning of cognitive strategies, for example, requires knowledge of certain principles and factual knowledge. In turn, learning of procedures requires that the learner first know specific verbal information. Practice is more important in the learning of motor skills, where acquisition is more gradual, than in the learning of intellectual skills, where

acquisition often comes as a flash of insight. On the other hand, if acquisition of cognitive strategies is the primary objective, it is more important to provide the learner with a variety of novel problems to solve than it is to have the learner engage in rote practice. All five of the learning outcome categories are relevant in the planning of a course, except when motor skills are the primary focus (Gagne, Briggs, & Wager, 1988, p. 61).

Points to ponder:

1. If you are like many students, you use massed practice rather than distributed practice? Why? Although the research shows that generally massed practice is rarely effective, there are a few instances in which it might be somewhat effective. Under what conditions do you think massed practice is most effective?
2. Provide examples of instances in which you attempted to learn a task that involved multiple interrelated parts and was complex (e.g., driving a car). How did you go about learning the task and did you follow what research suggests as optimal?
3. Providing specific learning goals and feedback are not as effective in the initial learning of a complex task as in later phases. Why do you think this is so?
4. Why do you think advance organizers are effective as a learning device? What are the effects on information processing and motivation of the learner?
5. Can you ever provide too much feedback? Why or why not?
6. Research has shown that learning in a group is a very effective way of learning and yet college students are somewhat negative about working in groups. Think of a time in which you learned as part of a group and the group experience was positive and led to more learning. Now think of a time in which you learned as part of a group and the group experience was less positive. What were the differences?

### Ways to Enhance Positive Transfer of Learning to Workplace

The most important issue in designing a training program is whether what is learned in the training environment generalizes to the workplace and is maintained. Transfer is positive, zero, and negative. The most desirable state of affairs is positive transfer of training, in which what is learned in the training improves learning or performance in the work setting. Zero transfer of training occurs when training does not affect the individual's performance when he or she returns to the work setting. The worst state of affairs is negative transfer of training, in which training hinders learning and performance in the work setting. Take, for example, a course in which managers are taught human relations skills. Such training has zero transfer if the managers return to an organization that does not support a human relations approach. Some research indicates that there is negative transfer if the supervisor returns to a work place in which nonparticipation and insensitivity to workers are the norm (Fleishman & Harris, 1962).

Maintain what was learned.

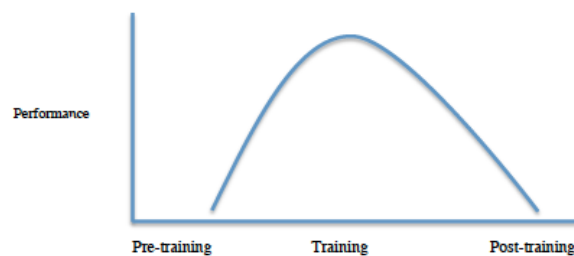
Maintenance of training is the length of time that skills and knowledge are retained once the trainee returns to the job. Numerous potential maintenance curves are possible. Figure 13.2 presents three possibilities.

Type A is the most likely pattern in organizational training. This curve describes a situation in which there is a decline in skills that begins slowly but accelerates over time. This pattern indicates the need for a refresher course at some point after the training session. Other patterns are possible, such as an immediate and complete loss of the trained behavior upon return to the work place (Type B) or a dynamic in which a moderate-to-low level of the skill is demonstrated at the beginning but the skill accelerates over time (Type C). To counter the rapid decay of learning depicted in Type A maintenance curve, organizations introduce post-training interventions in the form of refresher sessions, testing, monitoring, and coaching to make sure that trainees use rather than lose what they learn.

TYPE A:



TYPE B



TYPE C

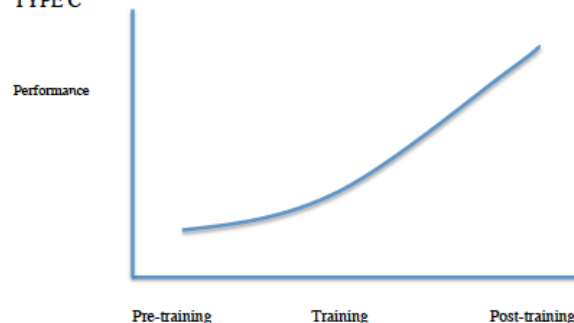


Figure 13.2: Three Alternative Training Maintenance Curves

Increase similarity of stimulus and response in training and the workplace

A very old principle for achieving positive transfer is that the stimulus and response elements in the training should correspond to the stimulus and response elements in the work situation. The model of identical elements proposes that the greatest transfer is achieved when both the stimuli

and responses are the same on the task used in training and the task required in the work setting (Thorndike and Woodworth, 1901; see table 13.2).

In this situation, trainees would practice the actual task they perform in the work environment (Goldstein, 1993). Somewhat less transfer is achieved when the task stimuli differ but the responses are the same. This is common to many training programs. An example is a leadership program in which the leader behaviors taught in the class are similar to those that are exhibited in the work setting (e.g., using a participative style in leading employees), but the conditions under which the behaviors are exhibited differ (e.g., describing how one would use a participative leadership style in a written analysis of a case as opposed to actually demonstrating participation in a face-to-face interaction). Where the task stimuli and the responses both differ from what is found in the work setting, no transfer occurs. Finally, negative transfer occurs if the task stimuli are the same but the response requirements differ.

<i>Task stimuli on training task and target task</i>	<i>Response required on training task and target task</i>	<i>Transfer of what is learned to tasks outside training</i>
Same	Same	Very Good - High positive transfer of training on training task to target task
Different	Different	Neutral - No transfer, positive or negative
Different	Same	Good - Positive transfer of training on training task to target task
Same	Different	Poor - Negative transfer, i.e., training on training task actually hurts performance on the target task

Table 13.2: The Transfer Model of Identical Elements

Although there is evidence from decades of laboratory research to support this model, it provides a highly limited guide to practical interventions to enhance transfer to the workplace. It is comforting to know that if the training tasks are similar to the workplace tasks, positive transfer is likely to occur, but the complex tasks performed in work situations are often quite different from what is encountered in the training. One can distinguish between *analogical transfer* in which one transfers the solutions learned in training to workplace problems that are similar to the training problems, and *adaptive transfer* in which what is learned is applied and adapted to new situations (Hesketh, 1997a, 1997b). Given the rapidly occurring changes in technology and increasing complexity of the information environments in which employees must operate, training seems to benefit more from adaptive transfer than analogical transfer.

#### Create difficulties for trainees

Generally, those practices that enhance learning during initial training also improve transfer and maintenance. A review by a National Research Council committee (Druckman & Bjork, 1991) identifies several exceptions to the contributions to transfer of initial acquisition. The authors of this report conclude that in addition to improving the original learning and increasing similarity of the training and the work place task, transfer is enhanced by



1. providing contextual interference during training.
2. introducing some typical on-the-job messiness by increasing the variability and variety of the examples given during training.
3. reducing (yes.... reducing) feedback.

All three appear to decrease performance during the initial learning of the task but then improve positive transfer by involving trainees in the learning process and encouraging a deeper level of information processing. Let us consider each of these three interventions in more detail.

The use of contextual interference in training reflects the fact that the ease with which material is acquired during training is not always a good indicator of how much is learned. Think of courses that were disliked because of their difficulty or the poor organization of the material. In some cases, the reader may have been surprised to discover later that, despite performing poorly throughout the course, he or she remembered and could apply the material. If this has happened, the reader has experienced firsthand the beneficial effects of contextual interference. In experiments demonstrating this, trainees are typically presented with problems that they must overcome during the training and are required to think deeply about the information. An experiment demonstrating the effectiveness of providing contextual interference provides students with a technical article to study and an outline that is either consistent or inconsistent with the article (Mannes & Kintsch, 1987). Although students given the consistent outline perform better on a test of verbatim knowledge, those with an inconsistent outline actually do better in applying what they learn to the solution of problems.

A second suggestion for improving transfer is to provide a variety of examples during training. Assuming that the examples provided are representative of what the trainee will encounter in the work place, varied examples should lead the trainee to derive rules or principles that facilitate transfer. Through applying principles to many different problems, trainees supposedly learn general task strategies that they can then apply to the world outside the classroom (Ellis, 1965; Duncan, 1958; Shore & Sechrest, 1961).

The third suggestion is to reduce the amount of feedback during training. Although providing frequent knowledge of results enhances the initial acquisition of learning, trainees can become dependent on the feedback and fail to acquire information-processing strategies. Providing only occasional feedback forces the trainees to develop the strategies needed after completing the training.

There are several caveats to the evidence that contextual interference, lack of feedback, and varied examples improves transfer. The trainee still needs to pass through a stage in which there is an initial acquisition of the material and this means lots of feedback, low contextual interference, and less varied examples. Presenting too much challenging material too early in the training process prevents the initial acquisition that is a precondition of transfer. Once the initial acquisition is accomplished, however, training needs to move in the direction of providing trainees with more challenging material and requiring a deeper processing of the material.

Error management training (EMT) is a method of creating difficulties for trainees in a way that encourages deeper processing of information and positive transfer to the workplace. EMT

encourages trainees to take risks and err so that they can learn from their mistakes. This is contrasted with error avoidance training (EAT) that encourages trainees to avoid mistakes. In an experimental comparison of EMT and EAT, researchers attempt to separate out the effects of emphasizing in the training the avoidance vs. encouragement of errors and individual improvement in performance vs. performing better than other trainees (Chillarege, Nordstrom & Williams, 2003). The researchers train the participants in Microsoft Word software and assign them to one of four conditions:

1. EMT/Learning Goal instructions inform participants of the benefits of learning from their errors and conveys that the goal is individual improvement over previous performance. Trainees are not given written solutions and are told to find their own solutions. They are given heuristics to use in coping with their errors.
2. EMT/Performance Goal instructions stress that the trainee's goal is to demonstrate high performance relative to other trainees and also mentions that computer performance is diagnostic of intellectual ability. The instructions further inform trainees of the benefits of making errors. They are also given four heuristics to use in coping with their errors.
3. Error Avoidant/Learning Goal instructions emphasize skill mastery and individual improvement but stresses that errors inhibit learning and are to be avoided during training. In the error-avoidant training, the researchers emphasize that trainees avoid errors in their learning of the software and provide trainees with step-by-step solutions that they use in correcting their errors.
4. Error Avoidant/Performance Goal instructions stress maximum performance relative to other trainees. The instructions also note that acquiring computer knowledge is diagnostic of intellectual ability. The researchers emphasize that trainees avoid errors in their learning of the software and provide trainees with step-by-step solutions that they could use in correcting their errors.

The results show that EMT participants ask for more assistance during the training than the EAT participants. The EMT participants also score higher on tests of procedural and declarative knowledge than EAT participants. In addition to these differences between EMT and EAT, participants with a learning goal that stresses improvement and learning perform better and are more intrinsically motivated than participants with a performance goal that stresses scoring higher than others in the class.

Authors of a meta-analysis of EMT, conclude that EMT approaches to training are associated with higher training outcomes than alternative approaches. The authors conclude that "This result demonstrates that deliberately incorporating errors into training can be an effective means for promotion of learning—a result that is in contrast to many traditional training approaches that focus exclusively on correct behaviors and that deny any positive functions of errors during training ...." (Keith & Frese, 2008, p. 66). The authors show that EMT is particularly useful when the training attempts to prepare trainees for solving novel problems other than those encountered in the training session rather than focusing on one procedure that the trainees use across all problems.

Other researchers are not as convinced of the effectiveness of EMT and have expressed concern about factors that confound previous research on EMT (Loh, Andrews, Hesketh & Griffin, 2013). In an experiment that avoids some of the common confounds in this area of research, participants are randomly assigned to conditions with instructions to embrace errors or avoid errors, or to a control condition that lacks any instructions about error (Loh, Andrews, Hesketh & Griffin, 2013). The task on which they are trained is a complex simulation in which they act as air traffic controllers. Their findings show that error avoidance harms transfer but that the EMT group does not differ from the control group receiving no instruction. The damaging effects of instructions to avoid error is especially pronounced among trainees who are more open to experience and agreeable, as measured with personality tests. Although the jury is still out on when EMT is most effective, it does seem clear from the previous research that a focus on avoiding error is ineffective as a learning strategy.

Instruction in how to overcome barriers in the workplace.

All the methods of enhancing positive transfer discussed so far require the trainees to become more involved in the training and to process information more deeply. The underlying assumption is that transfer is largely a matter of developing the correct cognitive strategies. Transfer also can fail, however, if trainees are confronted in the workplace with barriers to using what they learn and lack strategies for overcoming them. Two other means of ensuring transfer and maintenance directly address this issue.

Relapse prevention (RP) training attempts to improve the trainee's ability to cope with barriers to transfer what is learned to the workplace. RP programs were originally developed to help drug addicts and alcoholics cope with situations that lead to relapses (Marx, 1982). The assumption underlying RP is that the training program should provide instruction on how to transfer what is learned to the workplace and then maintain this learning. In these programs participants identify the situations that are likely to lead to relapse and consider possible means of coping with them. For instance, in training that encourages the use of a participative leadership style, RP provides instruction in how to deal with an autocratic boss who discourages participation.

The findings of what appears to be the only experimental evaluation of RP do not fully support the technique (Wexley & Baldwin, 1986). In the research students are trained to effectively manage their time by using such techniques as establishing and writing down long-term goals, linking short-term objectives and activities to long-term goals, using a daily planner, and constructing a daily to-do list. The question is whether students actually use the time-management techniques in their daily lives. Students in the RP condition develop possible coping responses for dealing with situations in which relapse is likely by having students brainstorm high-risk situations that might prevent them from using their time management skills and developing methods of coping with these situations. A control group receives time-management training but does not receive any transfer training. In the other two conditions, goal setting is used to ensure transfer. Trainees either set their own or have their goals assigned by the experimenter for specific time-management practices they attempt (e.g., "plan my day using a daily planner and refer to it several times"). The two goal-setting conditions lead to greater use of time-management skills than the RP and control sessions. Although the findings do not support

RP, a combination of goal setting and RP training might have led to even better results. Until such research is conducted, there is little basis for concluding whether RP is effective. Despite these inconclusive findings, some consideration of the potential barriers to transfer during the training program seems to make a lot of sense and deserves additional attention from researchers.

Increase the motivation to learn.

The effective use of contextual interference, low feedback, and varied examples in increasing transfer requires a motivated trainee. Deep processing requires real effort. If the trainee is apathetic, has a negative attitude toward the training process, or simply wants to avoid work and take the easy route to learning, moving the trainee in the direction of deeper processing is unlikely to work. Indeed, it may even backfire. The unmotivated trainee is unlikely to show gain in knowledge, understanding, or skill no matter how well-designed the training program. By contrast, a trainee who walks out of a training session fired up to use what he or she learned back on the job seems more likely to show transfer than a trainee who was unmotivated to participate in the training.

The results of several meta-analyses show how important trainee motivation is to whether learning in a training session carries over to the workplace (Bauer, Orvis, Ely & Surface, 2015; Blume, Ford, Baldwin & Huang, 2010); Colquitt, LePine & Noe, 2000). As summarized in table 13.3, trainees who are positively motivated are more likely to respond favorably to the training, acquire knowledge and skills in the program, and then transfer what they learn to a new context external to the training environment. To motivate trainees to learn, trainers need to make sure that the training meets the expectations of trainees (Tannenbaum, Mathieu, Salas, & Cannon-Bowers, 1991). One strategy is to induce realistic expectations by providing a realistic preview of the course at the beginning of or prior to the training program. Another is to recruit trainees whose expectations are consistent with the program (Noe & Schmitt, 1986). Trainers could heighten pretraining motivation with persuasive arguments for why training will benefit trainees.

Outcome variable	k	N	$r_{uc}$	$r_c$
Trainee reactions to training	66	10,217	.51*	.62
Post-training Declarative Knowledge	96	15,895	.14*	.19
Initial Skill Acquisition	33	3,521	.09*	.11
Transfer	18	1,709	.11*	.15

k = number of correlations; N = number of participants;  $r_{uc}$  = uncorrected correlation;  $r_c$  = corrected correlation; \* = confidence interval for the correlation does not include exclude zero.

Table 13.3: Correlations of Trainee Motivation with Reactions to the Training, Knowledge and Skill Acquisition, and Transfer of Learning

Allowing trainees to choose the type of training they receive is still another way of enhancing motivation, but this option is only recommended if it is possible to match preferences. Asking for

the relative preferences of trainees and then assigning them to a course that is not their top choice is likely to backfire (Baldwin, Magjuka, & Loher, 1991). Another approach is to provide economic and other incentives for participation in training (although some motivate theorist warn that overemphasis on money may destroy intrinsic motivation and detract from learning). An inspirational and dynamic instructor can increase trainee motivation during the training session. However, if the instructor enhances his or her appeal by entertaining the trainees and avoiding difficult material, the motivation to learn may rapidly dissipate when the trainee confronts real-world problems that require deep-thought and persistence.

### Create a climate supportive of the training

What is done in the training to support transfer and maintenance is important, but equally important to consider is what is done in the workplace to ensure positive transfer. Supervisor and peer support are perhaps the most important factors. If one learns a new skill and then returns to a work environment in which supervisors or coworkers reject what you have learned, transfer to the workplace is unlikely. Even if transfer does occur, maintenance of what is learned seems unlikely. A possible means of increasing positive transfer is to inform supervisors of the nature of the training and solicit their support prior to the training. Supervisors also could set goals for trainees related to the training and reinforce the application of the training in the workplace. Another means of inducing positive transfer is to have supervisors serve as examples or models of what was taught. Finally, peer support of learning is enhanced with a buddy system in which coworkers participate in the training together so that they can reinforce each other for using what they learned when they return to the workplace (Baldwin & Ford, 1988, p. 98).

A workplace factor that influences transfer and maintenance but is much more difficult to modify is organizational climate. Some organizations appear to possess climates that support transfer of training, whereas other climates are much less supportive. Trainees in organizations that support risk taking, experimentation, and personal development appear more likely to apply what they learned when they returned to the workplace (Goldstein, 1986). If an organizational analysis conducted in the needs assessment phase shows that training of a certain type conflicts with the climate, then it is futile to proceed with implementing the training. A possible alternative is to change the organizational climate using the organizational development interventions. Changing an entire climate is extremely difficult, however, and takes years to accomplish. A popular term applied to those organizations in which the climate supports training is the learning organization. These are organizations that emphasize continuous learning, knowledge sharing, and personal mastery. In these organizations there is an emphasis on problem solving and innovation, flexibility, and experimentation. Systems are developed to enhance knowledge sharing and that encourage employees to find or make opportunities. For an informative lecture on transfer check out: <http://www.youtube.com/watch?v=4cuCDItzPCM>. Also, the reading on the next page provides a discussion of transfer and some of nonobvious effects that the training experience can have on transfer of what is learned to the workplace.

### Type of skill learned as a moderator of transfer.

A potential moderator of whether these variables enhance transfer is the type of skills that are learned in the training. Table 13.4 summarizes the results of closed tasks vs. open tasks as

moderator of training transfer. Closed skill tasks are easier to train, less demanding of higher cognitive abilities, and are associated with more evident opportunities to apply on the job. With closed skills tasks successful or unsuccessful transfer to the work place is obvious. An example is training in how to operate a machine gun. A trainee clearly knows whether he or she has learned this task and what constitutes a successful transfer to the “workplace”. By contrast, open skills are more difficult to train, demand higher level cognitive abilities, and can quickly decay after training. There are fewer opportunities to apply the skills on the job and it is not as obvious whether successful transfer has occurred when one does attempt an application. An example is training in leadership skills. With open skills the trainee must exercise more discretion about when to attempt a transfer to the workplace. With closed skills the trainee has little choice in and how to transfer skills. A meta-analysis of the variables affecting transfer shows that all but cognitive ability are more strongly related to transfer with open skills than for closed skills (Blume, Ford, Baldwin & Huang, 2010). All of the predictor variables summarized in table 13.4 presumably aid the trainee in making the conscious choices he or she must make in the transfer to the workplace of open skills but are not as valuable given the constraints on trainees in applying closed skills.

Predictor	K	N	$r_{uc}$	$r_c$
Cognitive Ability	10	1,452	.31*	.37
Closed	8	1,338	.34*	.41
Open	2	114	-.12*	-.14
Experience	12	1,464	.02	.03
Closed	4	619	-.02	-.02
Open	8	845	.06	.06
Pretraining self-efficacy	18	1,663	.17*	.21
Closed	3	350	.08	.10
Open	15	1,313	.19*	.23
Motivation	24	2,574	.19*	.23
Closed	6	589	.09	.11
Open	17	1,490	.16*	.19
Work environment	22	2,085	.19*	.23
Closed	4	337	.03	.04
Open	18	1,748	.22*	.26
Pretraining knowledge	27	3,040	.15*	.18
Closed	8	959	.15*	.14
Open	19	2,081	.16*	.20
Posttraining self-efficacy	11	1,181	.09	.11
Closed	4	462	.05*	.06
Open	7	719	.12	.13

k = number of correlations; N = number of participants;  $r_{uc}$  = uncorrected correlation;  $r_c$  = corrected correlation; \* = confidence interval for the correlation excluded zero.

Table 13.4: Correlations between Predictor Variables and Training Transfer for Open and Closed Skills

### Points to ponder:

1. The employee in the organization of the future will need to continually engage in retraining to keep pace with changing technologies. What can management do to encourage employees to engage in lifelong learning?
2. There is evidence that some of the factors that facilitate performance during training may actually hurt transfer of the training to on-the-job applications. What occurs in these situations? How could we improve performance in training without harming transfer?
3. Assume that you are a trainer engaged in instructing new employees on how they need to perform the basic tasks of their jobs as well as various rules, procedures, and guidelines that they must follow. What could you do as the trainer to improve positive transfer?
4. Motivation to learn is crucial to how trainees perform in the training program and the extent to which what they learn transfers back to the workplace. How would you go about improving the motivation to learn of trainees in a training program?

### Alternative Training Methods

General principles of learning and transfer provide guidance in the design of training programs, but specific techniques are needed in the actual training of employees. Training techniques consist of both on-the-job and off-the-job methods. On-the-job and off-the-job methods differ not just in the location of the training but also in their philosophies.

#### On-the-job training

The most common means of training employees is to use on-the-job methods; one survey showed over 93% of companies used this approach for managers and supervisors (Saari, Johnson, McLaughlin, & Zimmerle, 1988). Obviously this is a very general category consisting of methods that are informal and spontaneous in nature or very formal and planned. There is no reason that management could not implement on-the-job in a systematic manner, but it is more often unsystematic and seldom attends to all the elements presented in the systems model of instruction discussed at the beginning of the chapter. On-the job training occurs in a variety of forms including casual conversations among coworkers, mentoring, internships, apprenticeships, job rotation, and transfers.

#### Mentoring and coaching.

This type of on-the-job training consists of an intense relationship in which a senior employee (the mentor) gives guidance to a junior employee (the protégé). Employees who have mentors appear more likely to receive promotions and higher pay than those who do not (Whitely, Dougherty, & Dreher, 1991). The danger of this method is that it depends so much on one person's choosing to form a personal relationship with another. Employees who are dissimilar to potential mentors on sex, race, and other personal characteristics often have less opportunity for mentoring than those who fit the mold. An indication of this comes from a study showing that employees from higher socioeconomic status backgrounds are more likely to receive mentoring and are more likely to benefit from it than those from lower socioeconomic backgrounds

(Whitely, Dougherty, & Dreher, 1991). Additional concerns are raised about the tendency of white, male senior managers to choose other white, male employees as their protégés, to the disadvantage of women and minorities (Noe, 1988a; Ragins & Cotton, 1991). Mentoring is of benefit in the training of employees, but organizations need to administer the process to avoid these biases and to maximize the benefits.

Closely related to mentoring is coaching. The primary difference is that in coaching an external consultant provides guidance whereas in mentoring the person providing guidance is another employee. Executive coaches come from a variety of disciplines including clinical and counseling psychology, but an increasing number of I/O psychologists are engaging in this area of practice. The technique of coaching is not well defined and can encompass a wide range of activities. For a video providing one view of executive coaching, take a look at: <https://www.youtube.com/watch?v=LY-KUovIq3s>

### Internships.

An internship is defined as a "structured and career-relevant work experiences obtained by students prior to graduation from an academic program" (Taylor, 1988, p. 393). While internships are often praised as an effective means of preparing students for work, the effects of these experiences have received little attention in research. In one of the few studies, university students who participate in internships are compared with those who do not (Taylor, 1988). Interns appear to benefit more than those who have no internships, with those whose internships allow autonomy reaping the greatest benefits. Students having internship experiences have a clearer conception of their own vocational abilities, interests, and values. In their search for employment they are more likely to use informal job sources and are evaluated more favorably by recruiters. Once employed, they achieve higher salary positions and are more satisfied with their salaries.

Similar to mentoring, internships vary widely in the quality of the experience. A badly conceived internship is worse than no internship at all. This was demonstrated in a study with psychiatric residents in a medical school (Lindy, Green, & Patrick 1980). The researchers report that residents with internship experience were inferior in their psychotherapy skills to residents with no internship experience. Apparently the humiliating experiences in the internship made interns less empathic.

### Apprenticeships.

This type of on-the-job training is most often used in teaching the skilled trades and typically consists of having a trainee spend time on the job assisting a more senior employee in addition to classroom training. Some observers decry the lack of a coherent national apprenticeship program in the United States (Kolberg & Smith, 1992). American apprenticeships are used mainly for adults and the number of apprenticeship programs registered with the U. S. department of labor is growing (see figure 13.3). However, fewer than 2% of high school graduates in the U. S. enter apprenticeships and most of these are in the trades (electrician, plumbers, carpenters, construction, power-line installers, sheet metal worker; see [https://doleta.gov/oa/data\\_statistics.cfmce](https://doleta.gov/oa/data_statistics.cfmce)). Of the 447,929 employees in U S. apprenticeship



programs in 2015, 95,770 were in the military. In contrast, over 70% of non-college-bound German high school graduates enter the workforce by way of a national apprenticeship system. In the German system, students spend one or two days a week taking classes comparable to what is found in a U.S. junior college.

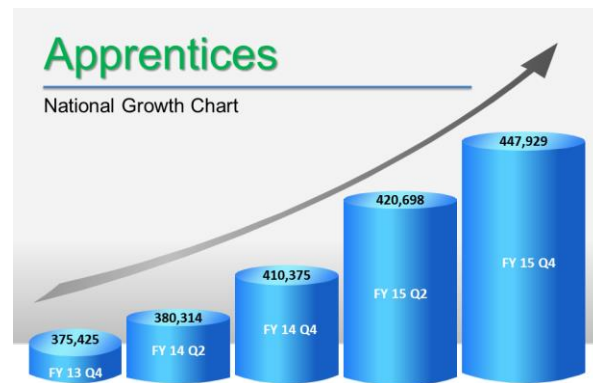


Figure 13.3: Increasing number of apprentices in the United States (source: [https://doleta.gov/oa/data\\_statistics.cfmce](https://doleta.gov/oa/data_statistics.cfmce))

Despite the value of apprenticeship programs, they are not without problems (Strauss, 1967). The quality of a program is only as good as the motivation and skill of the senior employee to whom the apprentice is assigned. As a consequence of senior employees with poor skills and negative attitudes, apprentices can convey incorrect or inefficient work methods. Apprentices spend a considerable amount of time on the job and unless properly scheduled, the time spent working conflicts with learning in the classroom. Finally, overreliance on apprenticeships ignores the intellectual component that is an important part of many skilled jobs. Apprentices who are trained only in the skills needed for current technology and lack an understanding of basic principles are at risk for technological obsolescence.

#### Job rotation and transfers.

With these options, the employee supposedly acquires KSAOs as the result of being moved to different types of positions or different locations. Job rotation is typically short-term, such as when management trainees in a grocery store spend as part of their orientation to the business a week as a sacker, another as a cashier, and still another as a stocker. Transfers are usually of longer duration and involve a geographic relocation for the employee and his or her family. Many large corporations reassign professional and managerial employees every few years. Exposing the employees to a variety of jobs and different parts of the organization supposedly enhances understanding of different functions and the interrelations among these functions. The belief is that those who have a sense of the big picture manage better than those who know only their special function (e.g., accounting, finance, production). Rotation and transfers also are believed to enhance the flexibility of the employee and the ability of the organization to cope with crises. Anecdotal evidence suggests that if transfers and rotations are not properly managed they suffer from some of the same problems associated with other badly implemented on-the-job

experiences (Pinder & Walter, 1984).

### The hidden costs of on-the-job training.

All of the on-the-job training methods discussed here are attractive because they appear relevant to the job, and the trainee is producing while learning. Visible and immediate advantages divert attention from the drawbacks of these programs. These include:

1. The time that must be devoted to training a novice can detract from the trainer's own productivity.
2. The lost use and possible damage to equipment incurred by the trainee.
3. Trainees may learn a lot of stuff that the organization would rather they NOT learn. The following is from the film "Training Day" where a rookie narcotics policeman gets some really bad training from his mentor (played by Denzil Washington)...be advised there is raw language. How does the Denzil Washington character violate principles of learning that we have discussed? Why would someone who provides on-the-job training act in this way? What do they think they are accomplishing? Is there any value in this approach?

<http://www.youtube.com/watch?v=AW0jm6i9U3M>

Unfortunately, careful evaluations of the costs and benefits of on-the-job training are rare. If employers conducted these evaluations, they would find that off-the-job methods offer many advantages over on-the-job approaches. Despite the potential problems, it is possible to increase the benefits of on-the-job training. A good start is to select good teachers and instruct them in how to train. Additional improvements are evaluating on-the-job trainers in how well they provide instruction and rewarding them for effective teaching.

### Integrating on-the-job and classroom training.

Vestibule training combines on-the-job and classroom training. The advantages of this approach were demonstrated in an experiment that compared sewing-machine operators who were trained off-the-job with operators who were given vestibule training (Lefkowitz, 1970). Vestibule training in this case consisted of classroom instruction part of the day in a room located adjacent to the assembly line and on-the-job coaching from supervisors the remainder of the day. The highest productivity and lowest rate of quitting were found for employees who received vestibule training. A factor that potentially accounted for the success of the vestibule training is that trainees discussed solutions to various job problems that were responsible for turnover. Discussions of job problems in the classroom also encouraged supervisors to give greater attention to trainees and to take steps to eliminate the problems.

Another means of taking the best of on-the job experience and combining it with classroom instruction is to identify the expert performers of a specific task, determine what they do in performing the task, and then teach this knowledge to novices. One variation of this is cognitive modeling. The first step is to use elicitation methods to capture the knowledge of the expert, possibly through the use of the critical incident technique (Klein, 1990). Specifically, an expert is asked to describe nonroutine performances and the skills he or she employed in accomplishing

the task. The rules and procedures derived from the information provided by the expert is then imparted to the novice by having the experts or instructors think out loud as they solve or diagnose a problem and make a decision. The success of cognitive modeling of expertise appears to depend on whether the experts can convey their processes and whether they are sensitive to the strategies being used by the trainee. Cognitive modeling techniques are successful in teaching reading and writing and hold considerable promise for job training (Druckman & Bjork, 1991).

### Off-the-job training methods

In this category of training the employee is taken off-the-job and instructed in specific skills, knowledge, or attitudes. All of the off-the-job training techniques are potentially useful and effective depending on the KSAOs that are the targets of the training.

#### Lecture.

The classroom method with which you are undoubtedly most familiar is the lecture. Perhaps because it is so familiar, the lecture is the favorite target of many critics of traditional approaches and advocates of innovative instruction. The lecture is often viewed as a technique of the past ... perhaps, the ancient past.

Critics of the lecture probably have in mind the many boring, confusing lectures they have experienced. For an extreme example consider this lecture by the comedian Professor Irwin Corey:

<http://www.youtube.com/watch?v=MxtN0xxzfsW>

Typical of the charges leveled against the lecture is that it (1) places the trainee in a passive role, (2) too often consists of one-way communication from lecturer to trainee, (3) provides little opportunity for the trainee to receive feedback on what he or she is learning, (4) relies too heavily on the style of the individual instructor, and (5) ignores individual differences among trainees in their abilities, interests, and learning styles. Moreover, the lecture is accused of evoking negative feelings on the part of the trainee that disrupt the learning of the material and the transfer of skills to the work place. Although these criticisms are appropriate to some lectures, forgotten in the attacks are the many benefits of this approach. A primary advantage is that a lecture allows the instruction of a large number of people at a relatively low cost. It is especially useful when the trainer needs to convey declarative knowledge to a large group of people at the same time. A skilled lecturer reduces anxiety and promotes positive attitudes toward the material. Moreover, the flexibility of a lecture allows the trainer to combine this method with a variety of other methods (e. g., audiovisuals, role playing, and case discussions).



There are problems with the research evaluating the lecture. Past research tends to include the lecture as a control condition that is compared to more innovative methods. Researchers rarely provide control conditions in which the lecture is compared with no training, and even less frequently examine the relative costs of lecture and the alternative methods. In their rush to show the advantages of the new method over the old, researchers seldom use the best possible lecturers in their evaluations of the lecture or examine the effects of lecture skill on trainee learning. A Hawthorne effect also is at work in the evaluations of the lecture in which new methods are preferred because of their novelty and the lecture is seen as deficient because its familiarity. Research that takes into account the lower costs of the lecture and uses the appropriate controls seems likely to produce a more positive view of the lecture than the dark picture that dominates current discussions of the lecture in the training literature. Although the deck is probably stacked against the lecture, a close examination of the research reveals that the lecture is more effective than commonly thought (Burke & Day, 1986). There is little to justify relying solely on the lecture in all training situations, but there is even less support for the position that the lecture is useless and should never be used.

### Programmed instruction.

This is a method that incorporates learning principles derived from operant conditioning research (Lockee, Moore & Burton, 2004). In designing a program of instruction, the material is broken into easily mastered chunks and arranged in a logical sequence. Trainees are presented with material that is simple at the start and becomes progressively more complex and difficult. At each step the trainee is presented with questions and receives immediate feedback on the correctness of their responses.

The ideal learning environment is described as one in which trainees (1) are actively involved in the learning process rather than serving as passive recipients of information, (2) can progress at their own pace, (3) are given immediate feedback on their responses, and (4) are rewarded frequently with success experiences. In the 1920s programmed instruction was first offered as the technique that could incorporate all these features. Pressey (1950) developed auto-instructional programs in which students read questions, chose an answer from alternatives, and received immediate feedback in the form of a light or buzzer. Programmed instruction did not become widely known, however, until a 1954 Harvard Educational Review article by psychologist B.F. Skinner introduced a type of programmed instruction called the linear

program.

The first step in developing a linear program is to define and organize the material that is the focus of the training program. The material is then presented in frames, each of which consists of one or a few sentences. An overt response is required for each frame through filling in a blank to indicate a missing item of information. Trainees set their own pace. After each frame they are provided with immediate feedback on the correctness of their responses, are often given an explanation, and then proceed to the next frame. Concepts are slowly introduced in simple terms before adding more complex material. The goal is to make the material so easy that most trainees succeed at each step of the process. In the linear program, trainees move on a single path through the material. The branching program is an alternative to the linear program and allows multiple routes in the completion of the material. The learner is allowed to skip steps or take accelerated routes based on past success. A learner who makes a correct response to a frame proceeds to the next frame. A learner who makes an incorrect response is directed to a set of frames that provides remedial instruction. Branching programs allow greater tailoring to individual differences by permitting the fast learner to skip ahead while providing the slower learner with extra instruction.

The research comparing programmed instruction to alternative methods is largely inconclusive (Lockee, Moore & Burton, 2004). Some research suggests that trainees acquire material faster with this type of instruction, but there is little evidence that they retain the material any better than students taught with more traditional techniques, such as the lecture (Nash, Muczyk, & Vettori, 1971). There are problems with past research, however, that limit the conclusions that one can draw from this work. The self-paced nature of programmed instruction makes it difficult to compare with more traditional techniques that impose a fixed time period (Goldstein, 1993). If students in the traditional method are allowed to stop and have their knowledge tested whenever they feel ready, the differences between programmed instruction and traditional instruction are not as large as found in studies where students in traditional instruction do not have this option. Other problems in research on programmed instruction are the lack of adequate comparison groups and the nonrandom assignment of trainees to the conditions. Regardless of the ambiguities of past research, programmed instruction seems effective as an instructional method for teaching factual material, and certainly no worse than other methods (Fienup, Hamelin, Reyes-Giordano & Falcomata, 2011; Kulik & Kulik, 1991; Svoboda, Jones, van Vulpen & Harrington, 2013). An added benefit is that the portability of an instructional program allows the instruction of employees who are geographically separated.

As with all methods, there are potential pitfalls. The most serious disadvantage is the cost and time required to prepare a good program. Thousands of hours are required to develop a comprehensive program, and several rounds of pretesting are needed to refine the program. Given when programmed instruction is shown superior to traditional methods on measures of retention and transfer, it may be hard to justify the time and expense. Also, not all trainees relish the solitude of a course that consists solely of programmed instruction. Perhaps the best approach to achieving acceptance is to use a blended or hybrid approach in which combine programmed instruction with other techniques involving more personal contact, such as discussion, lecture, or tutoring (Means, Toyama, Murphy & Baki, 2013).

## Simulation.

This technique consists of having trainees perform in the context of a model of an on-the-job situation. On-the-job training maximizes transfer but at a cost to efficient acquisition, whereas classroom techniques can ensure that certain material is taught in an efficient manner but may not carry over to the job. Simulation training seems an ideal compromise that combines the best of both techniques. To gain some familiarity with simulation training, take a look at the following video of one person's flight experience in a simulator. What do you think of the instructor? The simulation experience is only as good as the instructor associated with the simulator.

<http://www.youtube.com/watch?v=vJlg-UNEa5E>

Some simulation training is in the form of business games in which teams of players operate a simulated business, competing against each other or some optimal model. The trainees deal with a large number of contrived problems under realistic assumptions about the business and the outside world. Participants receive feedback on the results of their decisions (e.g., a profit-and-loss statement) as well as critical analyses of their behavior. Illustrative of mechanical simulations are the flight simulators used in the training of aircraft pilots. Not surprisingly, both commercial airlines and the military invest heavily in flight simulators.

Simulations frequently are designed to closely resemble the tasks in the job situation. The degree of similarity in surface features achieved, the physical fidelity, is often the primary basis for evaluating the effectiveness of a simulation. For example, flight simulators attain a high degree of physical fidelity by incorporating the controls, lights, and instruments of a cockpit, but even the physical motions of the aircraft. Although physical fidelity is important in motivating the trainee, a more important consideration is psychological fidelity. This is the extent that performance on the simulator involves the same behavioral and information-processing requirements as the job task. The research on simulation training gives surprisingly little attention to psychological fidelity. An exception was an evaluation of the psychological fidelity of an automobile driving simulators used to train taxicab drivers (Edwards, Hahn, & Fleishman, 1977). Observers posed as riders and evaluated the on-the-street performance of the driver. The drivers later performed two different driving simulations to assess performance on the simulators. The correlation between driving performance on the street and performance in the simulators was very low, casting doubt on the psychological fidelity of these simulators.

## Conference discussion.

A variety of approaches are included under this method, but they all involve a few key characteristics. A relatively small group (5-10 people) meets under the guidance of an instructor to discuss the material. Rather than lecturing, the instructor organizes the material, stimulates discussion, poses questions, summarizes key points, steers the discussion into productive directions, and generally orchestrates the discovery process. A key attribute of conference discussions is two-way communication among participants and between participants and the instructor. Often the discussion is in the form of problem solving in which the group tackles an



issue, generates alternative solutions, and arrives at conclusions. The main advantages of conference discussion are (1) developing problem-solving and decision-making skills, (2) modifying attitudes, and (3) teaching human relations skills. The conference method comes in many different forms and is difficult to evaluate. There is evidence, however, that discussion, which is an essential aspect of this approach, enhances learning (Brown & Palincsar, 1989; Lampert, 1986; Minstrell, 1989). Here's a very long video, but the first few minutes gives the reader a general idea of what is meant by the conference discussion method of training.

<http://www.youtube.com/watch?v=n0ngMwCmxM4>

### Case method.

This involves presenting a hypothetical or real situation to a group of trainees and having them analyze the causes of problems and suggest solutions. The case method is useful in teaching general principles that are applied in diagnosing problems and making decisions. Also, it is an inexpensive method of applying abstract ideas to practical problems. Given that there is often no one best answer for many complex problems, an important objective of the case method is to give students experience in dealing with the ambiguity of real problems. The style of the case discussion leader can vary widely. Some instructors use a highly unstructured approach in which they attempt through challenges and questions to get the students to arrive at principles themselves. Other instructors are much more structured and lecture on their own views of the case. Here are two short videos from Harvard Business School, one of the leading proponent of the case method.

<http://www.youtube.com/watch?v=eA5R41F7d9Q>

### Role playing.

In approach trainers give trainees a scenario and have them act out what they believe they would do given the facts in the role. A potential drawback of role playing is that some trainees feel more comfortable with role playing than others. Consequently, some may resist adopting the role and reject the whole experience, whereas others go too far and overact. Role playing is potentially effective as a means of teaching interpersonal skills such as salesmanship, communication, giving feedback, and conflict resolution (Solem, 1960). This method also has potential value in changing attitudes. The hypothesis is that when people act out a position that is contrary to their beliefs, their beliefs change to fit the role (Kidron, 1977). Take, as an example, a role play that requires an authoritarian manager to take the role of a participative manager in a training program that teaches participative management skills. In the process of acting out the role of a participative manager the manager could gain a new appreciation for what it means to be participative and the benefits of this approach to leadership. Role playing also is potentially useful in getting people to understand the positions of others with whom they have poor relations. An example is a supervisor who plays the part of the subordinate in a role played performance appraisal to gain some insight into how it feels to be on the receiving end of an appraisal. Bass, Cascio, McPherson, and Tragash (1976) described a program called PROSPER that is used in increasing managers' awareness of black employees' problems. Participants are given a case involving an insubordinate black engineer and a managerial role in which they are

required to express positive attitudes toward black employees and attempt to develop the potential of the engineer in the role play. Research with over 2,000 managers shows that the attitudes of managers are more positive toward black employees after the role play than before. The attitudinal changes are maintained when tested 3-5 months later.

An interesting question is whether the trainee needs to role play in front of an audience or whether it suffices to role play alone to one's self. The findings of a recent series of experiments suggest that when the objective is to change the attitudes of the trainee, it is more effective to have the trainees argue against their current attitudes to themselves rather to others (Briñol, McCaslin, & Petty, 2012). The findings from this same study suggest that when the objective is to bolster currently held attitudes, it is more effective for trainees to role play their arguments in favor of the position to others.

### Behavior modeling.

This technique is based loosely on Albert Bandura's social learning theory. Bandura asserts that learning can occur vicariously as the consequence of an observer's noticing and remembering a model's actions. If the observer is capable of enacting the model's behavior and appreciates the benefits of adopting the model behavior, then the observer is likely to adopt the model's behavior. Goldstein and Sorcher (1974) were the first to apply Bandura's concepts to industrial training. Five key steps are involved in behavior modeling training:

1. The trainer brings the attention of the trainees to some key points they should learn in the session.
2. A videotape or film is shown that depicts the enactment of the points they should learn.
3. To further enhance retention, the group of trainees discusses the modeled behavior shown in the films or tapes.
4. Trainees role play the behaviors they are to learn in the presence of the other trainees and the instructor.
5. Trainees receive feedback on how well they adopted the learning points in their role play. Verbal reinforcement (i.e., praise) is given for successful enactments of the desired behaviors.
6. Trainees discuss how they will transfer what they have learned in class to the work situation.

Behavioral modeling training programs appear useful in improving managers' skills in orienting new employees, teaching job skills, motivating poor performers, correcting inadequate work quality and quantity, conducting performance reviews, and handling discrimination complaints (Goldstein & Sorcher, 1974). Much of the research in this initial review was poorly designed (McGehee & Tullar, 1978). Subsequent research using more rigorously designed experiments support the conclusions of the earlier review and provide support for the effectiveness of behavioral modeling (Latham & Saari, 1979; Gist, Rosen, & Schwoerer, 1988; Gist, Schwoerer, & Rosen, 1989). In a meta-analysis of the results of 117 studies, Taylor, Russ-Eft and Chan (2005) report impressive support for behavioral modeling on declarative knowledge, procedural knowledge, trainee attitudes, job behavior, and workgroup productivity. Although the effects on declarative knowledge appear to decay over time, the effects on procedural knowledge are maintained and even increase over time.



## Choosing among alternative instructional methods

What do professional trainers say about the relative effectiveness of the various methods? In one survey, training directors rank ordered various methods in the order of their effectiveness for achieving the following objectives: knowledge acquisition, changing attitudes, problem-solving skills, interpersonal skills, participant acceptance, and knowledge retention (Carroll, Paine, & Ivancevich, 1972). Lectures were ranked last or next to the last across all these dimensions. Programmed instruction was picked as the best method of ensuring knowledge acquisition and retention. Role playing was seen as one of the best for changing attitudes and developing interpersonal skills. In terms of participant acceptance, the case study and the conference discussion were seen as best.

Trainer opinion is a weak basis on which to judge the relative merits of training methods, but research findings are generally consistent with the above opinions. The notable exception is the lecture method, which is much more effective as an instructional method than commonly thought. Support for this nonobvious contention comes from a comprehensive survey of the training research that identified 70 studies evaluating the effectiveness of various managerial training strategies (Burke & Day, 1986). Six different training content areas are compared: general management training, human relations/leadership, self-awareness, problem solving/decision making, rater training, and motivation values. The analysis also compares seven methods: lecture, lecture/group discussion, a specific programmed learning package on leadership called Leader Match, sensitivity training, behavioral modeling, lecture/group discussion with role playing or practice, and those training programs that combined three or more methods. A major conclusion of this study is that trained managers are more effective on objective results than untrained managers. Of the various methods, behavioral modeling is the most effective approach, but as already mentioned, surprising support is found for the lecture.

The readers are aware by now that a wide array of training methods are available to employers who are designing a training program. None is superior on every count. Each has its positive and negative features, and the decision as to which to use requires a careful analysis of the instructional objectives, the KSAOs and motivation of the trainees, the resources available, and other attributes of the situation. Randolph and Posner (1979) propose a decision model for making choices among training methods. Although this model is speculative and has little research to support its recommendations, it does provide a framework for thinking through some important considerations in choosing from among the various training methods.

### Points to ponder:

1. In what ways could you combine on-the-job and off-the-job training techniques to increase the benefits and reduce the disadvantages of each approach?
2. The lecture is a much maligned technique of instruction but is underrated. What evidence is there that it may have more value than commonly believed? Under what conditions do you believe the lecture is most useful as a training technique and in what conditions is it less useful?
3. What is the best training media for teaching waiters and waitresses in the interpersonal skills needed in the performance of their jobs? Why are these more suited to teaching these skills than alternative media?

4. One could argue that behavioral modeling will occur and newcomers to a job will learn from observing other workers. Why then would one need to institute a formal program of behavioral modeling?
5. Increasingly training is being conducted via long-distance on the computer and yet it is often less than effective. Why are companies (and universities) making more use of E-learning (electronic learning) and in what situations do you believe it is most effective?
6. A major distinction is between face-to-face training and computer-based instruction that is not face-to-face and conveyed via the internet (i.e. e-learning). Which of the training media discussed in this section do you believe are best suited for face-to-face instruction and which are best suited for computer-based instruction? Why?

## Implementation of Training

Once a training program is designed, management must actually carry out the program, and a lot can happen in the process of doing this. The final effectiveness of a program depends on the medium through which the instruction is delivered and how well the training program is implemented.

### Face-to-face instruction

Where a training program is dependent on a trainer for its implementation, the trainer's attitudes and expectations are crucial to whether the program succeeds or fails. If the trainer has a low opinion of the trainees and believes that the program will not succeed, these negative expectancies may become self-fulfilling prophecies. In this case, programs that should work fail because of the trainer's casual implementation of the training or poor treatment of the trainees. On the other hand, a trainer who has high hopes for a training program could make it work even though it is flawed in its methods. For a discussion of how expectancies shaped the findings of research evaluating subliminal tapes used to boost self-esteem take a look at:

<http://www.thepsychfiles.com/2008/10/episode-75-science-proves-subliminal-tapes-work-wellnot-really/>

Evidence of the effects of the trainer's prior expectations was provided in an experiment conducted in an Israeli military training program (Eden & Ravid, 1982). The researchers led some of the instructors to believe that their trainees had high success potential whereas others were given no information on their trainees. Despite the fact that their expectations were unrelated to the actual success potential of the trainees, trainees described as having high success potential performed better than the other trainees. Better treatment by the instructor of the trainees who were thought to have high potential was apparently responsible for their higher performance. The message seems fairly clear from these results: In addition to picking the best method, trainers need to be confident that the training will succeed and must communicate this confidence to the trainees.

In addition to the expectations and attitudes of the trainer, the trainer's skill as an instructor is likely to influence learning as well. As any student knows, not all instructors are equally endowed with the ability to teach. Common sense is supported by scientific evidence as shown in

a review of the research on how the teacher influences student achievement (Kyriakides, Christoforou, & Charalambous, 2013). According to this review, students achieve more when their teachers emphasize academic objectives in establishing expectations and allocating time, use effective management strategies to ensure that academic learning time is maximized, pace students through the curriculum briskly but in small steps that allow high rates of success, and adapt curriculum materials based on their knowledge of students' character.

### Recorded presentations

Rather than using a live lecture, an alternative approach is to present material via video and digital recordings. The widespread availability of recording devices and the existence of YouTube have created numerous opportunities for instruction. One of the authors is familiar with a chemical plant that contracted with several departments in a university to produce videotapes of lectures on specific topics. Engineers and scientists wishing to update their skills and stay current with the field could view the tapes during breaks in their work. A second example is a colleague of the authors who videotaped her psychology class lectures and put them on reserve in the library. Students could check these tapes out to go back over points covered in the lectures. Commuters can now acquire recorded lectures on various topics that they can play when driving to work and home.

An obvious advantage of a taped lecture is that it is less memory based. By replaying the tape, CD, or DVD trainees can ensure that they have received the information that the instructor intended to convey rather than relying on their memory of what was said or their notes. It is possible to present material in a dramatic and attention-catching manner through the use of professional actors, carefully prepared scripts, special effects, and editing. The most stimulating lectures are recorded so that all students can benefit from their instruction. Recorded presentations also have the advantage of allowing the standardization of the instruction, thus ensuring that trainees receive the same material.

The primary disadvantage is that there is even less opportunity for feedback and two-way communication with a canned lecture than there is with a live lecture. Also, once the film, videotape, or audiotape is produced, it is difficult and costly to modify. One large state university decided to teach many of its introductory courses by showing taped lectures via closed circuit TV. Unfortunately, the tapes were amateurish and boring. After going through an expensive process of taping numerous lectures, they were all discarded and live lectures were reinstated. If well done, recorded presentations are a useful adjunct to other methods, but there are dangers in basing the entire training program on video and audio material.

### Web based instruction

Web-based instruction is the use of the internet as the medium for delivering training to employees. It is a vehicle for instruction and not a method of instruction. Indeed, one could use the web to conduct lectures, social behavior modeling, programmed instruction, and all the other types of training discussed in this chapter. Web based instruction is uniquely suited to combining in one training program a variety of media including print, video, audio, graphics, and hyperlinks. With developments in computer technology and software, web-based instruction

promises to become more flexible and interactive. There is no doubt that web based instruction is a cost effective way of training large numbers of employees but what is the effect on training outcomes? Investigators have conducted a huge amount of research evaluating web-based instruction and several meta-analyses have reported the findings of these studies. The findings are not easily interpreted. The primary problem is that web based instruction is a method of delivery, not an instructional technique. Because web-based training programs use a variety of instructional methods, it is hard separating out the effects of the web per se and the method of instruction.

This is apparent in a comprehensive meta-analysis of the research comparing web-based, classroom, and hybrid instruction for training in job skills and knowledge (Sitzmann, Kraiger, Stewart & Wisher, 2006). Hybrid refers to instruction that blends web-based and traditional instruction. Web-based instruction was found more effective than classroom instruction on acquisition of declarative knowledge. Web-based instruction did not differ from classroom instruction on acquisition of procedural knowledge and on trainee reactions to the training. Hybrid instruction was more effective than classroom instruction on acquisition of both declarative and procedural knowledge, but interestingly, trainees tend to react more negatively to hybrid instruction than to classroom instruction. Upon further investigation, the authors point to two possible reasons that web-based and hybrid instruction appears more effective. First, the web-based courses used more instructional methods than the classroom instruction. Second, the web-based instruction required more active learning and student involvement than classroom instruction.

So far the evidence appears to favor web-based and hybrid instruction, but it is important to note that these comparisons did not hold the method of instruction constant. Was the apparent superiority of web-based and hybrid instruction due to the medium or the instructional method? When the instructional method is held constant, the outcomes for instruction that is in the classroom do not differ from the outcomes of web-based and hybrid instruction. The authors conclude that comparisons between web-based and classroom instruction have confounded the medium of delivering the training with the instructional methods making it impossible to really determine the relative impact of the medium per se on learning outcomes. This does not mean that web-based and hybrid instruction are a waste of time and that employers should return to traditional classroom instruction. Compared to traditional instruction, these delivery mechanisms are often more cost effective and allow the training of a larger number of trainees. To take full advantage of web-based and hybrid instruction, a variety of instructional techniques should be used and students should be actively involved in the learning experience. However, there is nothing particularly magical about web-based instruction. The findings of this meta-analysis are consistent with critics such as Clark (1994, 2012)) who have questioned the unquestioning excitement of ardent supporters of web-based instruction. "In brief, my claim is that media research is a triumph of enthusiasm over substantive examination of structural processes in learning and instruction. Media and their attributes have important influences on the cost or speed of learning but only the use of adequate instructional methods will influence learning. I define methods as the provision of cognitive processes or strategies that are necessary for learning but which students cannot or will not provide for themselves. I claim that absolutely any necessary teaching method can be delivered to students by many media or a variety of mixtures

of media attributes---with similar learning results (Clark, 1994, p. 27).” In short, web-based instruction is only as good as the instructional methods incorporated in the program.

## Evaluating Training Programs

In the systematic approach to training described in this chapter evaluation of the effectiveness of the training is the final step in the process. Goldstein and Ford recommend that programs should be evaluated on four criteria. Training validity refers to whether the training is effective in having an initial, intended impact on the trainee and achieves the instructional objectives. Transfer validity refers to whether performance in the training program carries over to performance in the job. Intraorganizational training validity refers to the extent to which results of training shown with one group of trainees in the organization generalize to new groups of trainees within the same organization. Interorganizational training validity is the extent to which results with a training program in one organization generalize to other organizations. One additional basis for evaluation not mentioned in the Goldstein and Ford model is the utility or usefulness of the training. The essential question here is whether the benefits of the training outweigh the costs.

Although this is arguably the most important component of the systems model, evaluation is the most poorly performed of all the phases in this model. A survey of over 600 companies reveals that 42% do not evaluate their management training programs at all (Saari, Johnson, McLaughlin, & Zimmerle, 1988). Of those companies that conduct evaluations, most of them rely on casual surveys of trainee opinions rather than conducting rigorous evaluations of one or more of the factors suggested by Goldstein and Ford.

The systematic approach to training requires rigorous research procedures that follow the same guidelines used in any basic or applied research. Rather than repeating what was already discussed in the research methods chapter, this chapter focuses on those methodological concerns specific to training evaluations. For an interesting podcast relevant to evaluating training, go to:

[http://ec.libsyn.com/p/2/5/8/258cfe7c3cd994e6/TPF\\_071\\_CorporateTraining\\_091808.mp3?d13a76d516d9dec20c3d276ce028ed5089ab1ce3dae902ea1d01cd8f35d9c85aff37&c\\_id=1316697](http://ec.libsyn.com/p/2/5/8/258cfe7c3cd994e6/TPF_071_CorporateTraining_091808.mp3?d13a76d516d9dec20c3d276ce028ed5089ab1ce3dae902ea1d01cd8f35d9c85aff37&c_id=1316697)

## Criteria for evaluating training

In the evaluation of training validity, it is essential to identify the criteria or standards against which the effectiveness of the training is evaluated early in the design of the program. Indeed, the systems model of instruction suggests that a direct outcome of the needs assessment and specification of instructional objectives is the choice of criteria.

A popular approach to training evaluation criteria is Kirkpatrick's (1977) four-step model of training evaluation (see table 13.5). In step 1, trainee reactions are assessed, usually by asking how much they liked the program. This is by far the most frequently employed means of evaluating training programs. Researchers distinguish among different types of reactions. The

most common distinction is between emotionally based evaluations of the training and judgments of the usefulness or utility of the training (Alliger, Tannenbaum, Bennett, Traver & Shotland, 1997). The typical student evaluation of instructors in a college course is a good example. In step 2, the assessment of learning consists of evaluating the extent to which trainees understand and absorb the principles, facts, and techniques conveyed in the course. This is also common and is usually measured with paper-and-pencil tests of achievement. The criteria described in the next two steps of the model are less frequently used in evaluating programs. In step 3 an assessment is made of how much the training changes behavior in ways that transfer to the job. Step 4 involves the measurement of results. These could include such outcomes as reduction in costs, turnover, absenteeism, and grievances and increases in the quantity and quality of performance. For an informative review of issues in training evaluation, check out: <http://answers.mheducation.com/business/management/employee-training-and-development/training-evaluation>

Basis of evaluation	Example
Reactions	Have trainees rate their satisfaction with the course and the instructor.
Learning	Give trainees a test to measure how much knowledge they acquired in the course.
Behavior change	Observe trainees on the job to see if they have adopted the behaviors and skills taught in the course.
Results	Measure productivity, profits, error rates, and other objective outcomes of those trained and those not trained.

Table 13.5: Kirkpatrick's Four Step Model for Evaluating Training Program.

Most evaluations of training in industry never go beyond step 1, on the assumption that if trainees like the training, then corresponding benefits on the other three criteria will follow. This assumption is incorrect. The findings of meta-analyses of the interrelationships among the four levels reveal that trainee reactions to the training are at best weakly related to the other outcomes. One meta-analysis reviews research that examines the interrelationships among the four Kirkpatrick levels. Although learning is moderately related to both results and behavior, and behavior is strongly related to results, trainee reactions were unrelated to the other evaluation criteria (Alliger & Janak, 1989).

A later meta-analysis reveals more support for the use of trainee reactions, but not much more (Sitzmann, Brown, Casper, Ely & Zimmerman, 2008). Table 13.6 summarizes the correlations (both corrected and uncorrected for artifacts such as unreliability) between reactions to training and variables thought of as antecedents to or causes of the reactions. The largest correlation is for instructor style. The reactions to the training are more favorable to the extent that trainees perceive the instructor to show verbal and nonverbal behavior that convey personal closeness and friendliness (e.g., smiling, use of humor, personal examples, calling students by name, providing and inviting feedback, relaxed posture, moving about the class). Trainee reactions to training are more positive the more the training provides the opportunity for interaction among students and between the instructor and students (however this was based on only four studies).

Antecedent	k	N	r <sub>uc</sub>	r <sub>c</sub>
Trainee characteristics				
Pretraining motivation	22	3,093	.34*	.42
Mastery goal-orientation	13	2,148	.19	.24
Agreeableness	7	353	.15*	.19
Pretraining declarative knowledge	17	1,930	.04	.05
Anxiety	18	1,789	-.25*	-.31
Course characteristics				
Instructor style	28	7,924	.55*	.66
Human interaction	4	7,924	.45*	.56
Organizational support	14	1,694	.20*	.25

k = number of correlations; N = number of participants; r<sub>uc</sub> = mean uncorrected correlation weighted by sample size; r<sub>c</sub> = corrected correlation; \* = confidence interval for correlation excluded zero

Table 13.6: Correlations of Antecedents with Trainee Reactions to Training.

Several of the correlations with antecedents show that a substantial amount of the variance in post-training reactions to the trainee are associated with attitudes that the trainee brings to the training session and have nothing to do with the content or style of the presentation. Whether trainees are motivated to learn prior to the course is positively related to reactions to the training. Also positively related to reactions are characteristics of the trainee such as their pretraining self-efficacy expectations, their agreeableness, their anxiety, how much knowledge they possessed prior to the training, and whether they have a mastery goal orientation (i.e., focused on learning as opposed to the outcomes of the learning such as grades). Finally, whether the organization is perceived to support the training is positively related to the reactions to the training.

Table 13.7 summarizes the correlations between reactions to the training and potential consequences of reactions. Not surprisingly, trainees who react more favorably to the training are also more motivated to learn and have higher self-efficacy expectations that they can learn the tasks. Consistent with the earlier review (Alliger, 1988), the reactions of trainees are only weakly related to changes in declarative and procedural knowledge and behavior. The lesson of the research is that although reactions of trainees to training provide useful information, organizations should not rely so much on trainee attitudes as an indicator of how much is learned, the degree of behavioral change, and results. If these other criteria are important, those wishing to evaluate a training program need to directly measure these criteria rather than relying on trainee reactions as surrogates.

Outcome variable	k	N	r <sub>uc</sub>	r <sub>c</sub>	Source
Post-training motivation	36	6,359	.55*	.68	Sitzmann et al 2008
Post-training self-efficacy	22	3,543	.25*	.31	Sitzmann et al 2008
Post-training declarative knowledge	78	11,005	.08*	.12	Sitzmann et al 2008
Post-training procedural knowledge	43	4,688	.12*	.15	Sitzmann et al 2008
Delayed procedural knowledge	14	1,408	.08*	.10	Sitzmann et al 2008
Immediate learning (with affective reactions)	11	.....	.02*	.....	Alliger et al 1997
Immediate learning (with utility reactions)	6	.....	.26*	.....	Alliger et al 1997
Behavior (with affective reactions)	11	.....	.03*	.....	Alliger et al 1997
Behavior (with utility reactions)	3	.....	.03	.....	Alliger et al 1997
Transfer (with affective reactions)	6	.....	.07*	.....	Alliger et al 1997
Transfer (with utility reactions)	3	.....	.18*	.....	Alliger et al 1997

k = number of correlations; N = number of participants; r<sub>uc</sub> = mean uncorrected correlation weighted by sample size; r<sub>c</sub> = corrected correlation; \* = confidence interval for the correlation excluded zero.

Table 13.7: Correlation of Trainee Reactions to Training with Training Outcomes

Kirkpatrick's model dominates thinking about criteria development, but the model of systematic training set forth earlier in the module requires that those responsible for training use a needs assessment in deciding what criteria to use in evaluating the training. In other words, they should analyze organizational needs, task requirements, and current KSAOs of trainees and then identify criteria that are relevant to this analysis. Employers who engage in a needs assessment will find that the criteria that are appropriate will vary with the program. In some programs all four criteria are relevant whereas in others fewer of the criteria are warranted in the evaluation of the training. In one situation, for instance, a needs analysis may show that trainee reactions are the only relevant criteria (e.g., a training program aimed at improving morale) and behavior change, learning, and organizational performance are irrelevant. In other situations, a needs analysis may show that trainee reactions are unimportant and that behavior change, learning, and organizational performance are more relevant. In short, the needs assessment that takes place in the first phase of the instructional model is critical and guides every step of the development, implementation, and evaluation of the program.

Research designs for evaluating training



The chief purpose of a research design is to allow the elimination of alternative explanations for the results. Thus, if a training program yields positive outcomes on criterion measures of trainee reactions, behavior, knowledge, and results, is the training responsible or do they originate from other factors? Table 13.8 describes two pseudo experiments and three true experiments.

	Time 1	Time 2	Time 3
<i>Pseudo experiment</i>			
Posttest only design		Training	Measure
Pretest/posttest design	Measure	Training	Measure
<i>True experiments</i>			
Posttest only/control group design			
Random assign. - Training group		Training	Measure
Random assign. - Control group		No training	Measure
Pretest/posttest/control group design			
Random assign. - Training group	Measure	Training	Measure
Random assign. - Control group	Measure	No training	Measure
Solomon four group design			
Random assign. - Training/pretest	Measure	Training	Measure
Random assign. - Training/no pretest		Training	Measure
Random assign. - No train/pretest	Measure	No training	Measure
Random assign. - No train/ no pretest		No training	Measure

Table 13.8: Types of Experimental Designs Used in Evaluating Training Programs

### Pseudo experiments.

One common approach is the simple post-test only design in which the criterion measures in the training group are measured after the training. If the measures look good for the training group, then the conclusion is reached that the training is effective. Somewhat better is a research design is the pre-test, post-test design where the training is evaluated by measuring criteria such knowledge and job performance both before the training and after the training. If there is an increase in the measure of the criterion from before to after the training, then the conclusion is that the training is effective. Neither the post-test only nor pretest-posttest design tells us much about the effectiveness of the training. Other factors could account for the increase on the measure of the criterion including things going on inside and outside the workplace at the time of the training. For example, equipment failures or a terrorist attack on the community could occur at the same time the training is implemented and confound the findings of the evaluation research.

### True experiments.

The best way to eliminate the alternatives is to conduct *true experiments* in which trainees are assigned at random to the conditions of the experiment (e.g., the training and no training groups). Two true experiments are the pretest-posttest/control group and the posttest/control group designs. In the pretest-posttest/control group design one set of employees is assigned at random to the training group while another group is randomly assigned to a control group in which there

is no training. The two groups are compared on how measures on the criteria change from the pretest to the posttest and the training is seen as a success if there is more positive change in the training group than in the no-training group. The posttest only/control group design randomly assigns some employees to the training program and other employees to the no-training control group. There is no pretest but only post-test measures of the criteria. If the training group does better on the measures than the no-training group, then the conclusion is reached that the training is effective. What makes these two designs true experiments is random assignment. If people are assigned nonrandomly, it is difficult to determine if differences on the criteria between the experimental and control conditions are actually due to training or some extraneous factor. For instance, if participants are selected for a program by asking for volunteers, and if those who do not volunteer are used as the control, any difference between the experimental group and the control group is the potentially due to differences between volunteers and nonvolunteers, not the training. One additional twist is the Solomon four group experimental design. Here the pretest/posttest/control design and the posttest only/control group design are combined to assess the effects of the pretest. The pretest itself, especially if it is done in a manner that is obtrusive, may trigger consequences that cloud the interpretation of the results. The Solomon four group design allows an assessment of the extent to which change in the criterion measures is attributable to pretesting.

#### Complications associated with experimenting in an organization.

True experiments are the best way to evaluate a training program, but one should not underestimate the difficulties of conducting experimentation in an actual organization. One complication is the Hawthorne effect. If you recall the discussion of the human relations movement, research in the Hawthorne plant of Western Electric in the 1920s and 1930s was confounded by the fact that those being studied were aware that they were in a research study. As a consequence, the employees who were studied felt that they were special and expected that changes in the workplace would benefit them. Similarly, the employees assigned to a training program may feel rewarded while those assigned to the no-training group feel cheated or ignored. As a consequence, differences on the criterion measures may reflect these perceptions of the situation rather than the training itself. So how does a true experiment control for these confounds? The best approach is to include among the control groups not only a no-training group but also another type of training that is expected to have a less positive effect. The positive training experience that is provided in addition to the one that is evaluated constitutes a type of placebo that should help control for a Hawthorne effect.

A second complication is rivalry. This is more likely to occur when training is evaluated in a field experiment in an actual organization. Trainees who are employees seldom submit in a completely passive manner to experimental procedures introduced in the workplace. Instead, they are likely to look around at coworkers to see if they are receiving the same treatment, and these comparisons threaten the validity of a field experiment. One possibility is that those who are assigned to the no training control are jealous of those who are assigned to the training condition. In some situations, the opposite occurs, such as when trainees interpret a training session as punishment or as deficient in some respect.

Two other potential threats to internal validity are compensatory treatment, in which supervisors

of the control (no training) groups compensate by giving their employees special attention, and diffusion of the training, in which information in the training leaks out to other groups. In both cases, the differences between the trained and the untrained groups on the criteria are made smaller by treatment by the supervisor or leakage of the training. Consequently, a training program that is in fact effective appears ineffective. One cannot avoid these complications by simply implementing a true experiment but instead must carefully monitor what is occurring during the research.

### Taking into account individual differences among trainees

Training evaluations need to include measures of trainee differences on ability, personality, values, attitudes, and other personal characteristics (Ackerman & Humphreys, 1990). The inclusion of such measures allows an examination of the relative effects of variations in the training and trainee characteristics. A comprehensive examination of this issue with over 5,000 U. S. Air Force trainees reveals that trainee characteristics may have more of an effect on training outcomes than the content of the training (Mumford, Weeks, Harding, & Fleishman, 1988). Researchers compared the relation to training performance of six characteristics of trainees (aptitude, reading level, academic achievement motivation, educational level, educational preparation, and age) and 16 course content characteristics (e.g., reading difficulty, instructional quality, student-faculty ratio). The characteristics of the trainees were better predictors than the course content variables of performance in training. Both trainee and course characteristics predicted negative outcomes, such as having to repeat sections of the course and remedial counseling, but student characteristics were the stronger predictors for these criteria. It is important to note that Mumford et al. (1988) examined performance in training, not the more important variable of how well training transferred to the work place. Another question that Mumford et al. did not address but that is likely to receive attention in future research is whether some types of students do better in some courses than in others.

Cronbach (1975) argues that evaluations of training should use an aptitude-treatment-interaction (ATI) research design to assess whether the effects of the training differ as a function of the characteristics of the trainee. In the context of this chapter, the treatment (T) is the training program whereas aptitude (A) is used very generally to encompass any individual difference, including not only what we defined as intelligence, but also personality traits and demographic characteristics such as age and gender. Interaction (I) refers to the possibility that one variation of training affects one type of trainee differently than another type of trainee. For example, with an ATI design one could test the hypothesis that behavioral modeling is more useful with older employees, whereas programmed instruction is more effective for younger employees. This pattern of results is an interaction of the two independent variables, type of training and age of trainee, and is equivalent to a moderator effect. In other words, one could also conclude that age moderates the effects of training. On the basis of ATI research that identifies the personal characteristics that moderate the effects of training, the method of training can be tailored to the trainee. Although current knowledge is too meager to provide detailed guidelines at this time, this situation will change as more research using ATI designs is conducted.

### Summative vs. formative evaluation of training

It is not uncommon for an evaluation of a training program to reveal differences in trainee reactions, learning, behavior, or results but lack any explanation of these differences. A more efficient approach to conducting an evaluation is to consider not only final outcomes but also process factors that influence the success of the training. Process measures are gathered by monitoring the training at frequent intervals, perhaps through observing trainees and trainers, testing for mastery and retention of the material, or surveying reactions to the program. An analysis of these data allows a determination of why a program succeeded or failed in the attempt to achieve objectives and can suggest modifications in the program. An evaluation that is based on nothing but outcome measures is referred to as summative evaluation, whereas an evaluation that incorporates mediating processes is referred to as a formative evaluation (Scriven, 1967). Both types of evaluations are needed. The formative evaluation allows for the modification and fine tuning implied in the systems model of instruction. Eventually a summative evaluation is needed to decide whether to continue the training or shift to an alternative.

#### Points to ponder:

1. The typical evaluation of college instruction never goes beyond student evaluations of the course and the instructor. Is this enough? What other criteria could the university use in evaluating a course?
2. The basic assumption of the ATI approach is that some training techniques are more effective for some trainees than for other trainees. What types of people do you believe would benefit most and least from each of the training media and learning techniques discussed in this chapter?

#### Conclusions

After years of education, some may think that they are finished with school once they receive their academic degree. Those who believe this are mistaken. The college degree has become a prelude to a lifetime of continuous training and retraining to keep abreast of rapidly changing and increasingly complex technologies. A national survey of college educated workers conducted in 2015 by Instructure (<https://www.getbridge.com/preparing-workforce>) revealed that only 7.9% said they were 100% prepared for their current job, 2.2% said that college did not prepare them at all, and the remainder said that college left them 67.2% prepared. Approximately ninety percent of respondents said that changes in technology and knowledge would require them to update their professional skills.

Goldstein and Gilliam (1990) note five major trends that will require organizations to invest in employee training and development. First, the pool of available workers is expected to shrink dramatically, forcing employers to rely more on training to ensure a qualified work force. Second, organizations will need to draw increasingly from the ranks of women, the disadvantaged, older people and immigrants, and will need to shape training to the special needs of these groups. Third, increasingly complex technologies will require a highly trained work force that is capable of "inferences, diagnoses, judgment, and decision, often under severe time pressures" (p. 139). Fourth, the continuing shift from manufacturing to service jobs will require that employers train employees in people-handling skills, such as interpersonal communication and leadership. Fifth, the increasing globalization of commerce will require a greater understanding and ability to deal with other cultures. As organizations face these pressures,

school systems are under increasing criticism for failing to impart the knowledge and skills needed to function in the increasingly demanding work environment. Business organizations will need to fill the void with their own training programs.

To maximize the benefits of training, this chapter proposes that employers use a systems model (Goldstein & Ford, 2002). The first step is to conduct a needs assessment to determine where the deficiencies are in the organization and whether training can correct these gaps. The process of conducting the needs assessment, apart from the needs that are identified, can produce positive outcomes. For example, the participation involved in surveying employees regarding their own needs for training is a means of building commitment to the training program. The needs assessment lays the groundwork for the design of the training program. Instructional events are built into the training program to facilitate each step of this learning process. Basic research suggests useful principles for facilitating learning, but the specific type of instructional method depends on the learning outcomes associated with the trainees' tasks. What enhances initial acquisition does not always enhance transfer of what is learned to the workplace. After the trainee has mastered basic tasks, the training must also challenge the trainee, provide a variety of task situations, and include preparation for how to overcome resistance in the workplace. Once on the job mechanisms and processes are needed to maintain what trainees have learned. The implementation of the training program is crucial to the success of a training program. Among the requirements for effective implementation are the attitudes, expectations, and skills of the trainer. In the final stage the training is evaluation on the specific instructional objectives set during the initial needs assessment phase. An investigative approach is recommended in which the training is evaluated, modified as needed, and finally discarded if improvements are not possible or if better approaches are available. The accumulated findings of research eventually will allow those responsible for training to tailor specific training methods to specific objectives and specific types of trainees. Until that time, the best advice for organizations is to use logic, careful planning, and empirical research to guide training efforts.

In conclusion, the training function is likely to become more important in the management of human resources as companies attempt to meet the skill requirements of increasingly complex jobs. Employers will need to rely on training to upgrade the skills of present employees and to provide basic skills for the disadvantaged and immigrant employees who will become a larger proportion of the work force in future years. They will also need to implement training programs that will prepare employees for the cultural diversity associated with changing demographics and the globalization of commerce. In short, the need to develop more effective training programs to meet the demands of these changes will keep I/O psychologists very busy in the 21<sup>st</sup> century.

## CHAPTER 14: PRINCIPLES OF EMPLOYEE SELECTION



## Introduction

Human resource management (HRM) consists of several activities aimed at achieving a good fit between the employee and the work and organization including staffing, training, appraisal and feedback, compensation, and work design. Staffing, which is the focus of this chapter, is defined as all the HRM activities required to recruit applicants for positions in the organization, select among the recruits those applicants who are hired as employees, and assign those who are hired to alternative positions. It also includes the activities that go into the strategic planning for hiring on the basis of projections of future needs. Staffing is a continuing activity in every organization and for that reason is perhaps the major area of practice of I/O psychologists. People leave or retire and employers must replace them; reorganization, growth, and modernization create new jobs that management must fill. How well this function is carried out goes a long way toward determining the organization's level of success. Take, for example, the internet company Google. One of the reasons for phenomenal success of this corporation is its approach to recruitment and selection of its employees. Based on research by its internal I/O psychologists, Google reached the decision that asking brainteasers such as “estimate how many gas stations there are in Manhattan” or “how many golfballs will fit in a school bus” and the typical interview were worthless. Based on research they develop structured interviews and had four interviewers conduct the sessions and evaluate applicants (Bock, 2015; retrieved from <http://www.wired.com/2015/04/hire-like-google/5>). An important consideration is that Google has a huge number of applicants to choose from and can afford to be highly selective. Their acceptance rate is about .2 percent which is much more selective than Harvard University (Thomas, 2016; retrieved from <http://www.theatlantic.com/business/archive/2016/04/the-science-of-smart-hiring/477561/>). This is only one example of the corporate use of selection procedures that I/O psychologists have developed to help employers make selection and placement decisions. In fact, much of the field's popular reputation—and notoriety—stems from the selection tests that are so evident in modern society.

Although the net contribution of psychological techniques to the staffing function is positive, the benefits would be even larger if the public and the primary users were better informed. The public in general and employers in particular do not understand these techniques very well. As a result, many mistakes are made in applying them, and much misdirected controversy surrounds their use. For example, some policy activist groups have gone so far as to advocate the outright banning of all employment tests, a move that research suggests would wreak serious economic and societal damage. The purpose of this chapter, therefore, is to give the reader a clear understanding of the principles that underlie the development, evaluation, and proper use of selection techniques for making staffing decisions. These techniques usually involve fitting people to jobs using recruiting, selection, and placement to achieve the goal of a good match between the KSAOs of employees and the work performed. The primary focus in this and the next chapter is on selection.

## Staffing and the Matching Strategy

The use of staffing to achieve a good fit between people and work assumes that neither individuals nor job requirements change very much. In contrast to training, which is aimed at changing people, and job redesign, which changes the work itself, staffing consists of getting the

best qualified people to apply for jobs, selecting among these applicants the one who best meet the KSAOs needed, and then seeing to it that they are allocated (i.e., placed) properly. The assumption is that people optimize their personal satisfaction with their work and their satisfactoriness in performing the work when their KSAOs match the requirements of the positions they occupy. This is the primary point in the theory of work adjustment (Dawis, Lofquist & Weiss, 1968). See the following for additional information on this theory:

[http://careers.19intheory.files.wordpress.com/2009/10/theories\\_twa.pdf](http://careers.19intheory.files.wordpress.com/2009/10/theories_twa.pdf)

<http://www.youtube.com/watch?v=BNuD1AAH4PA>

### Some caveats

The logic of striving for a good match rather than filling positions with whatever person is handy seems almost too obvious to mention. It turns out, however, that neither the strategy nor its justification is as simple as it seems.

1. In the first place, it is not easy to define what a good match is or to recognize one when it occurs. Employers often require applicants to possess specific credentials based on the fact that it's always been done without really checking out whether these credentials are needed. Take, for example, educational requirements. Suppose that employers fill all their highest paying positions with male college graduates on the premise that these applicants are best qualified for such work. Is this idea of a good match always correct? When asked to identify the job requirements and the qualities that they think make male college graduates so uniquely qualified, they answer that such people are just brighter than others, and their top jobs require the best minds they can get. Few people would buy this explanation and most would demand that the employers offer some proof. The evidence they provide is likely as unsatisfactory as the explanation. In short, there is room for argument over what constitutes a good match. This chapter explores ways of pinning the matching concept down to its most objective form, thereby leaving as little room for argument as possible.

This chapter will propose as a crucial first step in the selection process that employers conduct a job analysis to determine the knowledge, skills, abilities, and other characteristics (KSAOs) required in the job rather than relying on traditional practice. Careful scrutiny of the KSAOs and the predictors used in selection decisions leads to the conclusion that a lot of what is done has no scientific basis. Such scrutiny is likely to lead to a focus on other KSAOs and other requirements in the selection of employees. The scientific approach (which is explained in more detail shortly) never resolves the question of who is qualified with 100% certainty. That is not the nature of science. Although the scientific approach does not guarantee a match that everyone considers ideal or even appropriate, this approach is far better than basing selection on the rationale that it has always been done this way or is commonsense.

2. Another complication for the matching strategy is that it is composed of three somewhat distinct but interrelated components or substrategies: attraction (mainly, recruiting), selection, and placement (or assignment). The more people that employers can interest in joining their organizations (attraction), the more likely they are to identify people with superior qualifications. But their selection decisions are unlikely to realize their full benefit unless they do a good job of allocating the people hired to specific positions (placement).



Logically, the processes are sequential and interdependent: Employers cannot place people until they have recruited and selected them. Recruiting requires that they have jobs to fill. Successful placement in specific positions requires that employees have been selected on KSAOs that meet at least a minimal level of requirements for the work performed in the organization. From a practical standpoint, however, an employer may choose to emphasize one approach over the others, and that can make a big difference in overall strategy and results. For example, a company might select people on the basis of considerations other than proven capability (say, affirmative action goals and motivation to learn) and then do an extremely careful job of matching those selected with the existing job openings (a placement emphasis). Or, by contrast, a company might precisely define the requirements of a job, look for exactly the right person to fill that job, and then devote much of their effort to recruiting that individual (an attraction-selection emphasis). It is perhaps worth noting that employers, particularly in the private sector, have tended to view selection as the key process even when placement offers considerably more promise. The most effective approach usually depends on an accurate reading of the situation and proper implementation of the preferred approach.

As this chapter examines the various approaches to matching people and jobs, the reader should not lose sight of the overall HRM strategy and the important questions that strategic HRM pose for human resources professionals. Some of these issues have direct implications for people who are about to enter the workforce. For example, widespread honesty testing or drug screening could put an individual's career at risk, and affirmative action programs could positively or negatively affect their chances of landing that perfect job. Are such policies and programs fair and reasonable or just another reflection of an irrational socio-political climate? Understanding the foundations on which recruiting, selection, and placement techniques rest should help the reader decide.

#### Points to ponder:

1. What is the matching strategy in staffing and in what situations does it make the most sense?
2. How are attraction, selection, and placement interrelated and how might they conflict in some situations?
3. Compare and contrast satisfaction and satisfactoriness in the matching strategy. Do they always go hand-in-hand or do they on occasion conflict? Explain.

#### Selection

If an organization has positions to fill but not enough or very few applicants to fill these positions, there is an attraction problem. If through successful recruiting or a favorable labor market, an organization finds itself with many more applicants than job openings, it is faced with a selection problem. How the employer chooses can obviously affect the success of the selection decision. Every employer faced with these choices tries to pick candidates who have a good chance of working out, that is, ones who will show up at work reliably, learn quickly, work hard, get along well, and demonstrate trustworthiness. Employers use different techniques for making these hiring decisions such as interviews, work histories, background checks, tests personal references, and other techniques. Some employers use these techniques in a formal and analytical

(or scientific) manner; others do so informally and rely heavily on their intuition.

### The scientific and intuitive approaches to selection

There are two approaches to making selection decisions: the intuitive and the analytical (or scientific). Personnel selection is a forecasting problem regardless of whether an intuitive or analytical approach is taken. Implicitly or explicitly, the employer gathers information on candidates to try to foretell how well they will do if hired. Generally, the prediction is based on an explicit or implicit theory as to what determines employee success and failure. Finally, in evaluating whether the selection decision succeeds in making a good match, the employer falls back on the criteria that they perceive necessary for success and forms a judgment about whether applicants hired using the selection procedures met these criteria. Although the logic of the two is similar, the procedures employed differ dramatically, with the intuitive approach using informal and implicit practices and the analytical approach using formal and explicit practices.

### Two examples.

J.P. Megabucks, president of a local bank, hires all his employees personally. He relies heavily on personal references from people he knows plus an informal interview. He claims to have an uncanny ability for judging people. What he looks for in a candidate is what he calls "the old-fashioned values": honesty, loyalty, dedication, and the work ethic. He points with pride to several employees whom he hired as tellers over 20 years ago who have worked their way up to senior management positions.

Amalgamated Microchip, by contrast, is a large manufacturing firm that hires hundreds of new employees each year through its 30-person HRM (Human Resource Management) department. All its positions are described clearly in written staffing documents that include detailed specification of necessary qualifications that are updated periodically through a comprehensive job analysis program. HRM professionals manage the selection process by using a variety of techniques to measure candidate qualifications, including test batteries and structured interviews. Each employee who is hired is evaluated after three months on the job, and annually thereafter, using a formal appraisal system. The HRM department conducts periodic studies of its selection process to see how well the predictive information it uses actually does in forecasting employee success as indicated by the annual appraisals. It occasionally makes changes in its predictors (e.g., adds, deletes, modifies a test) on the basis of these studies.

### Features held in common by the two approaches.

Although the two approaches and the two contrasting examples suggest very different approaches, there are underlying similarities. In each case there is an underlying theory of what constitutes a good match of people to jobs and how it relates to success. For the bank, this theory consists of a set of beliefs in Mr. Megabucks' head. For Microchip, the theory is an empirically based model of explicit job requirements and personal characteristics, and the matching of applicant to position is based on explicit outcome criteria (appraisal results). Both the bank and Microchip, however, are trying to achieve the same goal (they share the "best fit" philosophy), and both think their respective methods will get it for them. Both believe that the information

they gather on each applicant (their predictors) will predict the chances of that applicant's success if hired. Both select on that basis, albeit in very different ways.

There are other similarities as well (see Table 14.1). One is the individual differences assumption that we encountered earlier. Unless people have enduring characteristics or traits that distinguish them from one another, an employer would have little hope of doing better than chance in selective forecasting. What a person is like today would have no bearing on what he is like tomorrow; the best candidate today is sometimes the worst tomorrow. In this situation, even a perfect measure of qualifications has no predictive value. Megabuck thus assumes that people differ on "old fashioned values," and the values they hold now they will always hold. Lazy people never work hard; dumb people never get smart. Microchip makes much the same assumption, but not necessarily about the same traits. It believes that people who score high (or low) on its tests will maintain pretty much the same relative standing on those tests.

**Features Common in the Intuitive and Scientific Approaches To Selection**

- Decide what KSAOs are Required to Job
- Choose Predictors that Measure these KSAOs
- Select Applicants on Basis of their Scores on Predictors
- Evaluate How Well Predictors Relate to Performance on the Job

Table 14.1: Features Common to the Intuitive and Scientific Approaches to Employee Selection

Another similarity involves confidence in how the traits are identified and measured. Both believe that their ways of estimating the important traits on which people differ are valid. Megabucks is convinced that they are valid based only on his intuition. Microchip relies on research and analytical evidence. If Megabucks or Microchip uses predictive information that is indicative of the identified traits, the entire logic of their approaches disintegrates. In this case, the predictors provide misleading information about traits and are invalid trait indicators. For example, if the information a former employer provided Megabucks about a candidate's dedication is just a reflection of past friendships, it is not a valid measure of the candidate's dedication trait. It might or might not predict job success, however, despite its failure as an index of dedication. Megabucks' theory about the importance of dedication is possibly wrong. If friendliness rather than dedication were actually what counted most in being a successful bank employee, the good personal reference could predict job success even though it was an invalid trait measure for dedication. Both intuitive (Megabucks) and scientific (Microchip) approaches to selection assume that the predictors are valid trait indicators, that the traits are important for job success, and that the predictors are therefore also valid for predicting job success.

Important differences.

Despite their logical similarity, however, there are vast differences in the precision and usefulness of the two extreme cases illustrated. The items that are listed here are from a scale that assesses the preference for an intuitive as opposed to an analytical or scientific approach to HRM. The “I” items are slanted in an intuitive direction so that agreement with the statement reflects more of an intuitive and the less of an analytical (i.e., scientific) approach. The “A” items are slanted in an analytical direction so that more agreement reflects more of an analytical approach. In reading through the items, think about one’s own style and attitudes with regard to hiring people and managing human resources in organizations.

1. In the decision on which applicant to hire for a job, the decision maker’s first impressions of the applicants are the best guide. (I)
2. Evaluating and choosing among job applicants in the selection process is an art, not a science. (I)
3. Being able to pick applicants who will provide the best fit to the job is an individual skill that some people possess and others do not. (I)
4. Choosing among job applicants in personnel selection is mostly a matter of luck. (I)
5. Commonsense is usually the best guide to making personnel selection decisions. (I)
6. In hiring people, how much others personally like the applicant should be considered in making the decision. (I)
7. Accurate hiring decisions can usually be made quickly without spending a lot of time. (I)
8. An experienced interviewer can size up an applicant with interview questions that they ask “on the fly”. (I)
9. An experienced interviewer can accurately “read between the lines” in evaluating the answers of candidates to questions. (I)
10. An experienced interviewer can judge whether the applicant is telling the truth. (I)
11. Human resource management is mostly a matter of commonsense. (I)
12. In making decisions about the management of human resources it is best for the decision maker to rely on what feels natural at the moment. (I)

Agreement with these items reflects an analytical approach and disagreement with an intuitive approach:

1. Applicants should be screened for jobs based on the specific knowledge, skills, and abilities required in the job. (A)
2. In screening applicants for jobs, standardized test results should be used to evaluate their fit to the specific requirements of the job. (A)
3. In conducting job interviews, interviewers should all ask exactly the same questions of all applicants. (A)

In interviewing applicants, the interviewers should ask only questions of applicant that are relevant to the specific requirements of the job. (A)

4. In interviewing applicants for jobs, interviewers should ask only questions that can be scored numerically. (A)
5. In choosing among job applicants, decisions should be based only on selection procedures that have been thoroughly evaluated in scientific research. (A)

6. A decision maker who relies on feelings in managing human resources is acting foolishly. (A)
7. The effective management of human resources requires that decisions are made slowly and deliberately. (A)
8. The effective management of human resources requires that decisions are made on the basis of quantitative data and the numbers. (A)
9. Decision makers should go with whatever the evidence suggests is correct even if it doesn't feel right and goes against their past experience. (A)

The purely intuitive approach is usually inaccurate and is vulnerable to a variety of biases that lessens the reliability, validity, and fairness of selection decisions (see table 14.2). Since the employer is confident of his judgment, he does not bother to check his track record for picking winners. In fact, people generally remember successes more readily than failures when contemplating their own past judgments (Fischhoff, 1975), so whatever thought Megabucks might give to his record would only reinforce his already inflated self-confidence. The employers who hire only male college graduates (clearly intuitive types) undoubtedly believe that their theory about who has superior qualifications is correct. They never see the need to test it by selecting women and non-college graduates and comparing the success of these hires to that of college-educated men. There is no inherent reason why one could not validate a nonscientific approach against the success rates of hires, just as one validates the more explicit scientific approach. The intuitive approach occasionally succeeds, but from available evidence of scientific comparisons of intuitive and analytic approaches, it is a safe bet that intuitive selection is rarely accurate (Kuncel, Klieger, Connelly & Ones, 2013; Zedeck, Tziner, & Middlestadt, 1983). Even when an intuitive approach succeeds, there is usually no way to verify this.

**Features of the Intuitive Approach To Selection**

- Identification of KSAOs on the Basis of Personal Beliefs about what Traits are Required in the Job
- Choose Predictors on the Basis of Face Validity, Testimonials, Faith
- Clinical Selection of Applicants (Subjective Judgments of Fit to the Job)
- Predictors are Evaluated on the Basis of Subjective and Informal Judgments

Table 14.2: The Intuitive Approach to Employee Selection

By contrast, the kind of explicit, scientific approach used by Microchip has accuracy checks built into its every step (see table 14.3). The KSAOs required in the position are not taken on faith, but are established through systematic job analysis. Trait measures are chosen based on past research and carefully matched to these requirements, and the whole system is validated against measures of on-the-job success. If any or all of the predictors give useless or false information, it is possible to detect and correct the failure. In short, an approach of this kind, properly implemented, tells you exactly how well it is doing in selecting people, and with at least some precision, lets you understand the reasons why.

### I/O psychology's role.

The contribution of I/O psychology to the selection process is in providing employers the techniques and information for implementing an explicit scientific approach. It offers specific predictors, such as well-researched tests and structured instruments for gathering background information on people, and techniques for developing the employer's own predictors. It provides job analysis tools and ways of measuring criteria such as job performance. But most of all, I/O psychology offers a process that replaces subjectivity and speculation with scientific thinking and objectivity. That is, I/O psychology advocates an approach to selection in which the logic outlined in figure 14.3 is made explicit and at every step of this process effectiveness is checked empirically.

Features of the Scientific Approaches To Selection
<ul style="list-style-type: none"><li>• Identification of KSAOs on the Basis of Job Analysis</li><li>• Choose Predictors on the Basis of Scientific Literature</li><li>• Statistical Selection of Applicants on the Basis of Quantitative Decision Rules</li><li>• Scientific Evaluation of Predictor Measures</li></ul>

Table 14.3: The Scientific Approach to Employee Selection

### Adaptation to special circumstances.

The scientific approach illustrated in the Microchip example is still the exception rather than the rule. Most organizations probably come closer to using Megabuck's intuitive procedures. However, more employers are becoming aware of the advantages of the scientific approach and some observers think there is growing trend in the adoption of the scientific approach in the selection of their employees (Harris, Craig & Light, 2011).

Many employers are too small to undertake all the elaborate techniques described in the Microchip illustration. A firm of 25 or 30 people is hardly able to afford a whole HRM department, and it would take years to carry out a meaningful test of its predictors against performance criteria. Still, even a "mom and pop" operation can benefit from the scientific approach. For example, it can take advantage of research done elsewhere to establish the validity of certain predictors for measuring traits or forecasting success in similar kinds of jobs (Schmidt & Hunter, 1977), and it can define job requirements and evaluate work performance systematically rather than in a hit-or miss fashion. It also can keep performance or other criterion records so that it can estimate how well its personnel decisions are working out (Arvey & Faley, 1988). The point is that a small company can implement the logic of the scientific approach to selection without incorporating all its tools. Doing so requires a bit more imagination when there are size or resource limitations.

Many of the tools involved in selection have other uses as well, like the tools for job analysis and performance appraisal. Predictor information also can have multiple uses. An employer may find that a test of mechanical knowledge, for example, is just as helpful in placing people, or in deciding what training they need, or even in designing a job for them as for choosing them in the first place.

Because this chapter focuses on matching people and jobs, the discussion is limited to matters involving selection and placement techniques. Since much of the discussion applies to both, and since the logic is a bit easier to follow in the case of selection, how measures are evaluated and used in selection is discussed before getting into placement. The discussion in this chapter focuses on the processes rather than the tools themselves. The next chapter examines specific tools of selection.

Points to ponder:

1. Compare and contrast the intuitive approach and the scientific approach to selection. Describe the differences between the two general approaches at each step of the selection process.
2. The intuitive approach often comes more naturally and for that reason dominates selection in organization. Although more effective, employers do not use the scientific approach as frequently as they should. Why does the intuitive approach seem so appealing to decision makers in organizations?
3. How would you describe your own inclinations selecting people for tasks? Are you intuitive or scientific? Are there situations in which you are more scientific and other situations where you are more intuitive? What are the circumstances that lead you in one direction or the other?

Evaluation of selection techniques

Optimal employee selection systems possess at least five attributes:

1. They use reliable measures of the predictors and the criteria
2. They use measures to select employees that are valid as determined through content, criterion-related, and construct validity strategies
3. They are cost effective in that the benefits of using them outweigh the costs of purchasing, administering, and scoring the predictors
4. They have a low probability of a legal challenge because they have minimal adverse impact against women, minorities, and other protected groups and do not violate privacy.
5. They do not damage attempts to recruit as a consequence of negative reactions of applicants.

Reliability.

Good measures of physical or psychological variables provides readings that are repeatable (or consistent and stable). Thus, a 12-inch ruler that is used to measure the height and width of an object, provides the same reading at time 1 and time 2. In this sense, the rule is stable across time. The reading of height and width is also consistent across different readers of measurement. If Fred finds a height of 12 inches and a width of five inches, then Ralph should produce the same dimensions. Finally, different rulers should yield the same reading. The ruler bought at the

hardware store should repeat the reading obtained with the ruler that's been in the kitchen drawer.

Reliability is the extent to which the instrument gives you a repeatable (or consistent) reading. Our example describes three of the four ways we usually approach the assessment of a psychological test's reliability.

\*Test-retest (stability) indexes.

These involve getting both readings from the same people on exactly the same test, either right away (immediate test-retest reliability) or with a time interval separating the two administrations (delayed test-retest reliability). Because of its focus on variations over time, the test-retest estimate is often called the coefficient of stability. The size of the coefficient in a test-retest depends on length of the interval. With a short interval the same extraneous factors influencing scores at the first time affect scores at the retest. The consequence is that the estimate of stability is inflated. The longer the interval, the lower the estimate of stability due to the elimination of factors present at the first testing. If fatigue affects the scores obtained at the first testing and remains an influence at the second testing, the correlation is higher than if the retest was conducted a year later. With a year delay, some of the people who were fatigued at time 1 are no longer fatigued at time 2 whereas others who were not fatigued now are. Immediate test-retest coefficients are typically in the range of .90-.99 whereas delayed test-retest coefficients often are lower. Whether a short or delayed interval is used depends on the use that is made of the test. If it is intended as a measure of a trait that remains stable over a long period, then a delayed test-retest is the better option. If it is intended as a measure of a momentary mood or attitude that changes with the situation, then a shorter interval is appropriate. A delayed test-retest procedure is usually more appropriate for employee selection given that most selection procedures are intended to measure stable traits that are used to predict performance in the distant future.

\*Equivalent (alternate) forms approach.

Here the two readings are taken using different versions of the same test, either right away (immediate equivalent forms reliability) or after a time interval (delayed equivalent forms reliability). Because the two forms are supposedly comparable despite containing different items, the term coefficient of equivalence is often applied to these indexes. The logic in this case is exactly the same as for the test-retest method. The only difference is that factors having to do with the test itself (difficulty, particular items) can also vary. For this reason, it provides a more conservative and complete estimate of reliability, particularly in its delayed form.

There are two ways of implementing the equivalent forms approach to estimating reliability. Split-half methods administer the test in one single administration and then splits the items in the test in half and computes two scores each based on half the items. The correlation of the scores for each halve is the index of reliability. Each halve is treated as a form of the test. This constitutes an immediate administration of half-length parallel forms. The second method is the alternate-forms method. Here two full-length equivalent tests are developed and administered, usually at different times. The score is computed on each test separately and the correlation



between the scores is the reliability coefficient. The equivalent forms approach requires having enough items to make up two versions of the test and some way of equating them. For purely statistical reasons, test length has an important bearing on how large a correlation coefficient one obtains. Comparing two short forms gives a lower estimate of reliability than two long forms even if both pairs are equally reliable.

\*Internal consistency (or internal reliability) indexes.

One source of error is that associated with the particular items that make up a test. If you construct a measure so that a collection of items is scored and the sum or average of the items is the test score, then the items need to be positively related such that if scores on one item are consistent with scores on other items. For example, a test of Type A/B should contain all items that are indicators of the Type A/B construct and if a person answers with a Type A response to one item then he or she also should answer with a Type A response to other items in the test. If the items are not positively related, this suggests breaking the test into different measures.

With the internal consistency approach to estimating reliability, the correlations among the items of components of the measure are calculated to estimate the reliability of the measure. To the extent that the items are highly correlated, the test is homogeneous and there is consistency in the responses of the test takers across the items. A test is unreliable to the extent that the items do not “hang together” and responses to one item are unrelated to responses to other items. One popular index of internal consistency reliability is the coefficient alpha. This is essentially the combined (average) correlation of scores on every item with every other item in the test.

\*Interrater (or interjudge) reliability.

In the case of interviews, assessment centers, and other predictors based on subjective assessments, a judge rates the applicant and it is the rating that is used to select among applicants. Very often multiple raters or judges rate the same applicants and the average or sum of their ratings constitute the predictor variable. In these cases, the appropriate basis for estimating the reliability is the extent to which the ratings of applicants across judges are consistent. If there are two interviewers who interview the same applicants, then high interrater reliability is indicated by consistency between the interviewers in the relative ratings of the applicants. For example, interviewers A and B both give the highest rating to applicant 1, the next highest to applicant 2, and the lowest to applicant 3. Note that interrater reliability reflects consistency in the ratings across the raters and *not agreement*. For instance, interviewers A and B may give very different ratings to the three applicants with interviewer A giving a rating (on a 6-point scale) of 6, 4, and 1 to the respective applicants and interviewer B giving a rating of 4, 3, and 2 to the same applicants. They disagree in the absolute ratings but the correlation between their ratings is high and indicates that there is consistency. It is important to also note that interrater reliability is similar to internal consistency and indeed, internal consistency indexes of reliability are sometimes used to measure interrater reliability. When this is done, the raters or judges are treated as if they are items in a test.

In all cases a correlation is used as an index of reliability with 0 constituting the least reliability and 1.00 the highest. In estimating test-retest reliability, a correlation is computed between the scores obtained with the same test at two different times. In estimating equivalent forms reliability, correlations are computed between the scores obtained with two different forms of the same construct. In estimating inter-rater reliability, correlations are computed between different raters. In internal consistency the inter-correlations among the items or components of the test are computed.

Some of these approaches to assessing reliability are more appropriate in some situations than in others. For instance, inter-rater reliability is only used if the scores are generated by raters or judges. Test-retest is only appropriate if the construct is expected to remain stable over time. The equivalent forms approach is only appropriate if there is more than one form of test and these forms are truly equivalent, or if there are sufficient items to justify a split-half approach. Finally, internal consistency approaches are only appropriate if the measure consists of multiple items and the measure taps one construct.

Reliability is not the same as accuracy. Reliability refers to the consistency (repeatability) of a measure, not the truth or accuracy of the measure. Some reliable measures are consistently wrong and others are consistently right, but the fact that they are consistent is what makes them reliable. If the idiot light tells the driver that he is in trouble every time the engine temperature exceeds the normal operating range, and that the driver is not in trouble whenever it is within that range. The light is perfectly reliable. If a measure is reliable, it may or may not be an accurate and valid measure of what it is purported to measure. However, if a measure is unreliable, it is unlikely to be of much value as an indicator of what is measured. In short, reliability sets the upper limit to how well one can use the measure to predict future performance on the job. For a quick review of some of the issues related to reliability check out the following link:<http://www.thepsychfiles.com/2012/01/ep-168-reliability-the-foundation-of-any-good-personality-test/>

Points to ponder:

1. Compare and contrast the different approaches to assessing the reliability of a selection instrument or the criteria used in evaluating the instrument.
2. The approach taken in assessing reliability depends on the situation in which the selection instrument is used. When is interrater reliability the most appropriate approach? When is it most appropriate to assess long term stability using test-retest? When is internal consistency most appropriate?
3. What is the difference between accuracy and reliability? Given an example of an inaccurate measure that is reliable?
4. What is the difference between inter-rater reliability and inter-rater agreement?

### Validity.

This is about whether the measure is right, whereas reliability is concerned with the extent to which the measure yields consistent or repeatable readings regardless of whether they are right or wrong. More specifically, validity is the extent to which the instrument gives a reading of

whatever it is intended to measure. If the wires to the idiot light or temperature gauge in a car are incorrectly connected to the car's electrical system, they would give bad information no matter how precisely and reliably they did so. If the driver took these readings at face value, he would waste money on unnecessary repairs and do serious harm to the engine in the process. Similarly, if an intelligence test really measures how hard an individual tried rather than how bright that bright this person is, it could lead to some bad career decisions.

Validity means one thing. It refers to whether the users of a test or some other predictor variable in selection are justified in making the inferences from scores on the predictor that they make in selecting among applicants. Although unitary in concept, there are several ways of evaluating the extent to which the inferences from scores on a measuring instrument such as a test are justified. The three main approaches to estimating validity are construct validity, content validity, and criterion-related validity. These are discussed in the chapter on research methods. This chapter returns to these concepts to apply them to the evaluation of selection instruments.

#### \*Criterion-related validation.

This approach involves assessing whether the predictor measure is associated with criterion measures such as job performance, attendance, teamwork, and other measures of important criteria. In many respects, criterion-related validation is the most practical of the approaches. It invokes the bottom line question of how much proven capability an instrument possesses in forecasting a criterion measure such as job performance. Under ideal circumstances, it is the key to successful use of tests and other predictive devices in selection and placement.

Criterion-related validity is based on the premise that efforts to measure constructs or other content serve the primary purpose of improving the ability to forecast future events. Employers care about mechanical aptitude or the content of the mechanic's job because they want to predict who will make the best performing mechanics before they put them on the job. They can tell how well their measures perform this task by relating individual scores to actual job success. If the test is a valid measure of the abilities that a good mechanic should possess, people with high scores should achieve more success on the job than those with low scores. As in the case of reliability estimation, the best way to express relations of this sort is with a correlation. The most common index of criterion-related validity is the correlation ( $r_{xy}$ ) of scores on measures of the predictor (X) and the criterion (Y). Because the general public has trouble understanding correlation, however, the relation is often expressed directly with expectancy charts that show the expected success rate (see figure 14.1). An expectancy chart shows the likelihood of a person's succeeding (surpassing some specified level of performance that are set prior to the validation) on the criterion for each predictor score or range of scores.

There are two common ways of obtaining criterion-related validity estimates: the predictive and the concurrent approaches. They are similar in both the underlying logic and mode of expression (i.e.,  $r_{xy}$  or expectancy). They differ, however, in one important respect. The predictive approach uses job candidates, whereas the concurrent approach uses job incumbents (i.e., current employees).

The steps involved in conducting a predictive validation are:

1. Administer predictors to applicants.
2. Ideally hire applicants at random or with the current selection procedures. Ideally, do not use the selection procedure that is being evaluated.
3. Follow up and measure the performance of those hired on criterion measures.
4. Compute correlations of scores on the predictor and scores on the performance measures.

The steps involved in a concurrent or current employee validation are:

1. Administer predictors to a sample of current employees (ideally a random sample)
2. Measure scores of the employees sampled on criterion measures (e.g., job performance)
3. Compute correlations of scores on the predictors and scores on the criteria.

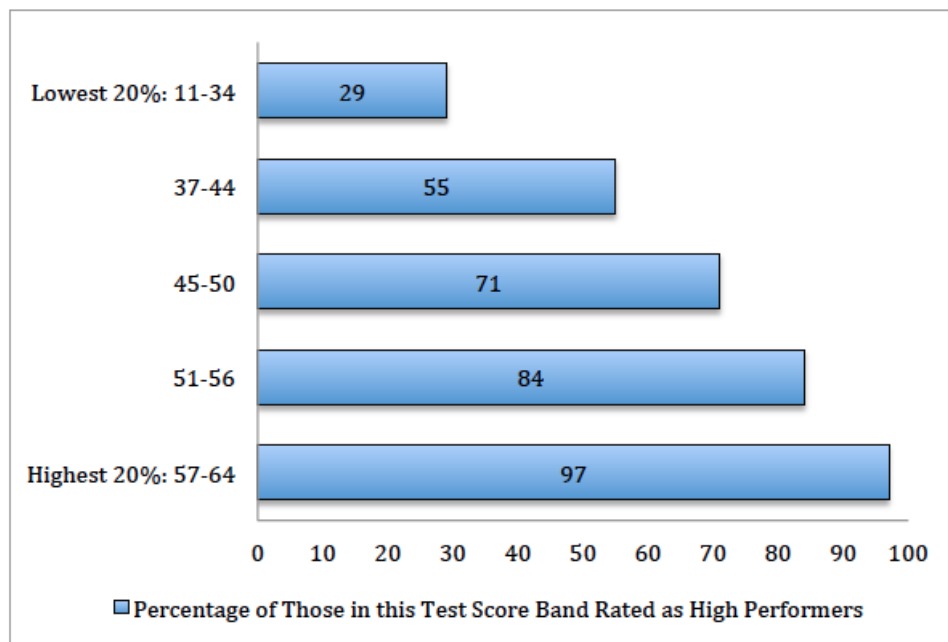


Figure 14.1: Example of an Expectancy Chart Used to Convey Validity of a Test Used in Selection of Employees

In both the predictive and the concurrent strategies, the instrument (test) that is validated is given to a number of people and a correlation is computed between their test and criterion scores. For incumbents, the employer knows who has worked out well and who has not, and the scores on the criterion measures are already available. For applicants, the employer must wait until those hired have had a chance to show something. This difference is important for several basic reasons. First, the incumbents often differ from candidates on their characteristics, if only because employers have already screened and selected incumbents on some basis. Second, even if they are basically alike, the two samples take the test under very different circumstances. The security of knowing that one has a job is not the same as the pressure and uncertainty in trying to get one. Third, the criteria of success for new hires may differ from the criteria used in

measuring the success of incumbents. Many times the predictive approach relies on early performance indicators such as training evaluations and performance in the first year of employment. Incumbents, on the other hand, generally have a longer record of performance on the job itself.

Ideally, the predictive model is the most appropriate for selection and placement purposes. However, for this model to realize its full potential, certain conditions must exist that rarely do in practice. Ideally employers should hire candidates without regard to the scores on the test that they are trying to validate. Once validity is established, the employer uses the measure to screen candidates. The problem is that a screened sample is likely to yield a poor estimate of the true validity of a predictor because of restriction of range. The more valid the test actually is, the less variability there is on the criterion measures of those hired using it, and the harder it becomes to demonstrate its true validity. Also, of course, the predictive model faces the criterion problem that employers generally go with early performance measures rather than waiting five or ten years to see how well the predictions really turned out. Ideally, the evaluation of a predictor measure uses long-term performance on the job. The actual application of the predictive validity model is likely to fall short of this ideal. Few employers are willing to spend time and money testing candidates, and then ignore the results just to get a better reading of the value of the test. Likewise, employers want to know the validity of the measure now and are unlikely to hold off using it until long-term performance is measured

The predictive approach is costly to do right; and as it is compromised in the interest of economy, its potential advantage over the concurrent approach diminishes. For this reason, the concurrent approach is often preferable despite its limitations as a forecasting index. Sometimes it is used on an interim basis while the data necessary for a good predictive study are collected.

#### **\*\*Validity generalization vs. situational specificity.**

Most validity studies are carried out in less than ideal situations. Because of the deficiencies of these studies (also called artifacts), some researchers argue that the true predictive power of predictors used in employee selection is grossly underestimated (Schmidt & Hunter, 1977). Fortunately, there are statistical corrections for each of these artifacts. If data from enough comparable validity studies are available, it is possible to estimate generalized validity for a type of test by correcting statistically for the three artifacts. Unreliability in measures, restriction in range, and sampling error are three sources of error that can combine to depress the obtained validity coefficient and lead to underestimation of the true validity.

#### **\*\*Factors that lead to underestimation of criterion-related validity.**

The earlier chapter on research methods discussed meta-analysis and the corrections used to obtain more accurate estimates of the population values for the relations among variables. The reader is encouraged to return to this discussion and review the three primary factors that tend to lower the estimates of criterion-related validities. Here is a short recap of what is discussed in this chapter.

The number of participants used in the validation of the predictor can affect the accuracy of the estimate of the validity. When the sample size is small, the estimates of validity are more likely to deviate from the true validity as the result of random factors that bias the results. With a large sample of participants, these random factors balance out and one can more accurately estimate the true validity of the instrument. In a single validation study, it is important to draw a large, random sample to obtain an accurate estimate of the validity. When conducting a meta-analysis and combining validities across studies it is important to weight each study to take into sample size. Consequently, validities obtained with large samples are given a larger weight than smaller samples.

Unreliability in the measurement of predictors and criteria is an artifact that can depress the correlations obtained between them. Return to the example of the car's temperature gauge. Validation of the instrument requires that the driver determine whether the gauge is hooked up to the right system and that it is actually measuring engine temperature. One way to answer this question is to let the engine cool and warm up (a criterion change) and look for a corresponding change in the temperature reading. An indication that the gauge is valid is a declining temperature reading as the engine cools and a rising reading as the engine warms. But what if the gauge is unreliable and provides readings that vary wildly while the car is running? In this case, any single reading is useless. The driver might examine how warming and cooling of the engine corresponds to readings on the gauge, but the more unreliable the gauge, the harder it is to tell whether the change in reading reflects an actual change in temperature or random fluctuations in the gauge. Again, confidence in that conclusion declines as the inconsistency (unreliability) of the measures increases. Validity does not impose limitations on the estimation of reliability, but reliability constrains the estimation of validity and prevents obtaining a good estimate.

Restriction in range of the measurement of the criterion and the predictor is another artifact that can lead to underestimation of criterion-related validity. When validating a test an employer may wish to use the measure immediately to screen employees rather than waiting to determine its validity. If there is prior evidence that it is valid, the employer's lack of patience is perhaps understandable. The problem is that when the criterion data are collected to determine how those selected fared on the job in relation to their test scores, the applicants with low scores on the predictor are eliminated from consideration. This restricts the range on the predictor and depresses the correlation between the predictor and criterion. Restriction of range also occurs on the criterion side of the equation. What if, for instance, employees are screened out on the basis of their first performance appraisal and only the top performers are retained? A lower correlation between the predictor and the criterion is found than if those hired are not eliminated because of low performance. The validation in this case leads to an underestimate of the true validity of the test. In the examples given, the correction is for direct restriction in range as a consequence of how the predictor and criteria are used in the employment situation. Restriction in range is also indirect. For instance, the employer might not use the test that is validated to screen applicants, but the procedures that are used (e.g., GPA, a knowledge test) are highly correlated with the test under consideration. Screening on these other predictors indirectly restrict the range and lead to underestimates of the validity of the test.

Validity generalization, however, is more than a collection of statistical corrections. It represents

an important shift in thinking about evaluation and use of predictor instruments in employee selection. The traditional view is that to do a good job of selecting or placing people, the predictor measure must be validated for the specific context in which it is used. If the predictor measure is used with a different organization, job, or worker population then another validation study is needed in these other contexts. It was assumed that the more you deviated from local conditions, the less faith you could put in validity estimates (sometimes referred to as the situational specificity hypothesis). The evidence seems to support this view. Surveys of criterion-related validity results show large variation in the validities obtained in the research with validities ranging from very small to very large levels. In a frequently cited survey from the 1960s, Ghiselli (1973) found that across all occupations and all tests the average validity in the prediction of training success was .39 and the average validity in the prediction of job proficiency was .22. The highest validity coefficient in the prediction of training performance ranged from .28 to .65 and in the prediction of job proficiency the highest validities ranged from .24 to .46. Although the validities are large enough to make them useful, it is also apparent that the validities vary considerably with the type of job.

#### **\*\*Meta-analytic procedures in testing validity generalization.**

In contrast to the situational specificity hypothesis, the validity generalization concept states that validities are not necessarily limited to the situations in which they were computed. Moreover, a validation of a predictor measure does not need to be redone every time it is used in a new situation. It is possible to test whether validities generalize across situations. An assumption underlying validity generalization is that there is a true validity underlying each predictor. One cannot directly measure the true validity of a predictor but must rely on estimates computed in specific situations. Each situation provides a flawed estimate and it is only through combining the results of many estimates of validity in a variety of situations that one can determine the true validity of the predictor. Consequently, the test for validity generalizability uses meta-analysis, a method encountered throughout this text. There are three basic factors that limit the generalizability of any one validation study to other situations: sampling error, unreliability of measures, and restriction of range in the predictor and criterion.

Correction for sampling error is the most important correction, and when this is the only artifact that is corrected we call the meta-analysis a “bare bones analysis”. However, after correcting for sampling error, variation in validity estimates is still likely to exist. Once the average validity is calculated (a weighted average that takes into account different sample sizes) and corrected for sampling error, one can correct for artifacts that attenuate the estimation of the criterion-related validities with corrections for unreliability and restriction in range (also called corrections for attenuation). A detailed discussion of these corrections is beyond the scope of this text. Suffice to say that the application of these additional corrections yields a validity estimate that approximates the true validity of the predictor.

#### **\*\*Example**

So what are the steps to follow in testing the hypothesis that criterion-related validities are situational specific vs. generalizable across situations. To illustrate a hypothetical set of results from several validation studies is presented in table 14.4. Assume that criterion-related validation

studies are conducted in five different organizations with the same type of employee. In each study there is a computation of the correlation between applicant scores on a general intelligence test and performance on the job one year later. As seen in table 14.4, the number of employees involved in each study varied widely from a low of 25 in study 4 to a high of 1000 in study 1.

First, to take into account the widely varying sample sizes in the separate studies, the weighted mean of these correlations is computed. This is done by multiplying each validity coefficient by the number of participants involved in the study used to estimate the validity and then dividing by the total number of participants in all five studies:

$$\text{weighted mean of validity coefficients} = [.26(1000) + .10(50) + .67(100) + .40(25) + .11(75)] / [1000+50+100+25+75] = 350.25/1150 = .305$$

Study	$r_{xy(i)}$	$n_i$	$n_i * r_{xy(i)}$	$r_{xy(i)} - Mr_{xy}$	$n_i * (r_{xy(i)} - Mr_{xy})^2$
Study 1	.26	1000	260.00	-.045	2.025
Study 2	.10	50	5.00	-.205	2.101
Study 3	.67	100	67.00	.365	13.320
Study 4	.40	25	10.00	.095	.226
Study 5	.11	75	8.25	-.195	2.852
Sum		1250			20.524

$r_{xy(i)}$  = criterion related validity coefficient in sample i

$n_i$  = number of participants in sample i

$n_i * r_{xy(i)}$  = product of the validity coefficient in a study and number of participants in that study

$r_{xy(i)} - Mr_{xy}$  = difference of the validity coefficient difference in a study and the weighted mean of the validity coefficients across all five studies

$n_i * (r_{xy(i)} - Mr_{xy})^2$  = the product of the number of participants in a study and the squared difference between the validity coefficient in that study and the weighted mean of the validity coefficients across all five studies

Table 14.4: Illustration of How to Test for Validity Generalization Using Five Hypothetical Validity Study Results.

Second, compute the variance of the observed criterion-related validities around the weighted mean validity that was just computed. The formula for computing this variance of the observed criterion-related validities is computed by (1) taking the difference between each observed validity coefficient and the weighted mean validity, (2) squaring this deviation, (3) multiplying each squared deviation by the number of participants in the sample used to estimate the validity, (4) summing all the squared sample weighted deviations, and (5) dividing the sum of the weighted squared deviations from the mean by the total number of participants in all five studies. The variance of the observed validities across the five validation studies is computed as follows:



1. variance of observed validity coefficients =  $(2.025 + 2.101 + 13.320 + .226 + 2.852)/1250 = 20.533/1250 = .016$
2. variance of the sampling error =  $[(1 - \text{mean validity})^2 * K] / \text{Sum of sample sizes} = [(1 - .093)^2 * 5] / 1250 = (.823^2 * 5) / 1250 = .0032$  (K = the number of studies)
3. correction of variance of observed validity coefficients for variance of the sampling error =  $.016 - .0032 = .0128$

Taking the square root of the remaining variance after correcting for sampling error yields a value of .113. Using this value we can construct what is called a confidence interval. Taking the weighted average of the validity coefficients one can subtract .113 and add .113 to generate an interval of .418 - .195. This is the 95% confidence interval. If numerous validation studies were conducted, 95% of the estimates of the validities would be expected to fall within this interval. Thus, one indication that the validities generalize is that after subtracting sampling error from the variance of the observed validities, the credibility interval does not include the zero validity.

This is where the procedures stop if conducting a “bare bones” analysis. A more precise test of validity generalizability requires also correcting the validity coefficients for unreliability on the criterion and restriction in range. After correcting for unreliability and restriction of range, the weighted mean and the variance of the sampling error on these corrected validities are calculated. Using these values, a credibility interval is computed by subtracting and adding the square root of the sampling error. The credibility interval is similar to the confidence interval but is computed using what are assumed to be the true validity estimates. The credibility interval is typically smaller than the confidence interval.

There are important conceptual differences, and potentially important practical differences, between the credibility and the confidence interval. If many, many samples were drawn from a population of employees and the validity coefficient for each sample was computed, then one would expect that 95% of the validity estimates would fall within the range of scores defining the 95% confidence interval. Because the validity coefficients computed on these samples are not corrected for unreliability and restriction of range, they can vary across samples. The credibility interval treats the weighted mean of the corrected validities as the true and fixed value of the validity coefficient in the population. Knowing the credibility interval, a researcher can say that there is a 95% probability that the true criterion-related validity falls within this range of scores. For practical purposes, there is not a lot of difference in most situations between the confidence and the credibility interval. Both values give us a sense of whether the weighted mean validity coefficient really exists and is generalizable.

If the correction of artifacts leads to a large reduction in the variance in the validity coefficients across studies, the researcher concludes that the variance of the uncorrected validities is mostly due to artifacts. A rule of thumb used in determining whether the reduction in variance associated with the corrections of artifacts is large enough to justify the conclusion that validity generalizes is the so-called 75% rule (Hunter, Schmidt & Jackson, 1982). The application of this rule is often more stringent than testing to see if the zero point is in the credibility or confidence

interval. To implement this rule, the researcher first computes the variance of the uncorrected validity coefficients and compares this to the variance of the corrected validity coefficients. If the variance of the uncorrected validity coefficients is four times or greater the variance of the corrected validity coefficients, the researcher concludes that validity generalizes. A detailed discussion of the 4/5ths rule is beyond the scope of this chapter, but it is important to note that it is an arbitrary rule that is controversial. The best advice is to construct both confidence and credibility intervals as well as check the extent to which variance is reduced after correction for artifacts.

Despite the continuing debates about techniques of testing validity generalization, the science of I/O clearly shows that if there are a sufficient number of validation studies to conduct this test of the two hypotheses for a lot of the predictors that are currently used in employee selection. As is discussed in the next chapter, the research has shown that the validity of mental ability generalizes across situations. Consequently, it is not necessary to revalidate a cognitive ability test for every new situation. The evidence for some other predictors supports a situational specificity hypothesis. In the case of these predictors, there are moderators of whether the predictors are related to criterion measures and a separate validation study is needed to determine whether the predictor is appropriate to the situation in which it is used.

Although the science of I/O states that some predictors pass the test of validity generalization, the federal guidelines on the fair use of tests in selection and court decisions interpreting the Civil Rights Act of 1964 have yet to catch up to what the science of I/O has shown. The Uniform Guidelines were written from the traditional situational specificity perspective (EEOC, 1978), whereas current professional guidelines accept the generalization model (American Psychological Association, 2014; Society for Industrial-Organizational Psychology, INC, 2003). Although there is still debate on the specifics of how to test for validity generalization and when to apply the model, the science has clearly shown that the validities of some of our predictors do indeed generalize across a remarkable range of situations. It is time that public policy makers acknowledge that the validity generalization hypothesis can guide the use of some predictors. Employers having few employees has little chance of doing a meaningful local validation study and it is of immense practical benefit to know that they can rely on generalized validity estimates in choosing from among predictors. If the employer has a large number of employees and has the resources and large numbers to allow local validation, it is better to validate the predictors locally than rely on validity estimates from other studies (Carretta, 1989). Even in the latter case, the evidence on validity generalization can guide the decision on what predictors to validate. To summarize:

1. Validity generalization is the extent to which a predictor measure found valid for a job in one location is also valid at other locations.
2. Simply eyeballing the extent to which validities vary across studies is an inaccurate approach to assessing validity generalization because criterion-related validities can vary as the consequence of unreliability in the predictor and criterion measures, restriction of range on both the predictor and criterion measures, and sampling error.
3. To assess validity generalization, corrections are made for these attenuating factors. The corrected validity is a more accurate estimate of the true validity and allows a determination of the extent to which the validity of the predictor actually does vary across situations.

4. The key to establishing validity generalization is meta-analysis and job analysis.

**\*Content validation.**

This is the second general approach to evaluating validity and is best thought of as the extent to which the measure provides good coverage or representativeness of what it purports to measure. High content validity requires that measures sample the full range of the domain in which one is interested, rather than just a portion of it or some other domain. If for example, an algebra test that fails to include questions on geometric functions and substitution rules is less content valid than a test that covers this material. Similarly, if it included questions on English grammar, it is less content valid than if it did not: Such questions represent a different, and irrelevant, content domain.

Because content validity involves the idea of sampling from a larger domain, it is sometimes expressed as a proportion rather than a correlation coefficient. To use a proportion, however, requires that one has a clear indication of what the relevant domain is, and some way of measuring content that is and is not covered. In practice neither of these requirements is easily met, so content validity is often reduced to a matter of expert judgment. One way to objectify a relevant job domain is through job analysis. If 100 critical task or function elements are identified in a maintenance job, the content validity of a test for that job is expressed in terms of how many of the 100 were represented. A 50% sampling is rather poor; 90% is rather good.

If the content of predictor measures is a well-defined set of observable behaviors, such as task elements, it is possible to evaluate content validity much more explicitly than if the measure consists of a set of unobservable mental constructs, such as traits. Thus it is easier to define the content validity of a test for auto mechanics than a test of mechanical aptitude. What an auto mechanic does is describable; the abilities and other traits that account for the success of a good auto mechanic can only be inferred. This example illustrates how content and construct validity are conceptually different, yet related. The better you can define the constructs of interest, the better you can do in judging how much of the relevant domain is covered with the measuring instruments. Content validation is particularly important in the development of predictor and criterion measures. In the absence of criterion-related validity research, employers can and should use content validation to guide their choice among predictor measures. However, if a predictor is used to select employees, employers eventually need to conduct criterion-related validation studies. To summarize:

1. Content validity is the extent to which test items are a representative sample of the content that they are purported to measure.
2. Content validation involves estimating the degree to which a predictor measure includes a representative sample of the content of the job.
3. Content validation requires a job analysis and the judgments of experts about whether the test samples the content of the job
4. Content validation is an important consideration in the development of a predictor measure.

**\*Construct validation.**

As discussed in the research methods chapter, criterion-related and content validity are subsumed under construct validity. Construct validity refers to whether scores on a test or some other instrument reflect the characteristics that they are purported to measure. A construct valid temperature gauge actually measures temperature. An intelligence test actually measures intelligence. An algebra test actually measures algebra proficiency. Constructs are never directly observed but are only inferred from what one observes people doing. If a person answers algebra questions correctly, one can infer that she has "algebra knowledge," particularly if another person who has never been exposed to algebra gets them wrong. If the person does well on many different kinds of mathematical items on which people are known to differ, one can infer that the person has a high quantitative aptitude. In these examples, algebra knowledge and quantitative aptitude are constructs. They are valid to the extent that one makes the right inferences from test scores about the constructs that the tests are designed to measure.

Estimating the construct validity of an instrument such as a test is not easy because one has no direct access to the construct itself. The statistical techniques used in assessing construct validity are too advanced to go into here. Instead, this chapter examines the logic that underlies these techniques. Construct validation basically consists of testing theories about how the construct operates. For instance, a person who just took an intensive course in algebra should have more "algebra knowledge" than one who has not, other things being equal. If the scores on a test presuming to measure the "algebra knowledge" construct do not differentiate between these two individuals, one would have to assume that the test has low construct validity.

The convergent validity approach involves using different measurement instruments to index the same construct and then comparing the resulting scores. The theory here is that if a construct exists, different measures of it should converge. Hence, the more convergence, the higher the construct validity. If this sounds like parallel-forms reliability, it is because the two have much in common. Obviously these are gross oversimplifications of how one would actually do a construct validation study, but they illustrate the concept. How one expresses construct validity, therefore, depends on what kind of study is done; there is no simple index, such as a correlation coefficient, to convey this information.

\*Face validity.

This is the extent to which people see the predictor as a good and reasonable measure of success on the job. An ordinary typing test is face valid because it is obviously job-related. You sit at a typewriter and type. Personality tests commonly used in selecting police officers are not as face valid because they ask questions (such as whether you dream a lot or like to play golf) that have little apparent connection to law enforcement. The intuitive approach to selection relies on face validity, but this is the least important basis for evaluating a predictor. Many predictors that research has shown to be associated with important criteria are not particularly high on face-validity. More is said about them in the next chapter.

Although employers should not rely on face validity it is not totally irrelevant. A predictor that arouses resentment or anger among applicants can adversely affect recruiting and possibly lead to lawsuits and other complaints. While not a substitute for the other kinds of validity, face

validity can have a bearing on how test takers react to the test, and therefore, how meaningful their scores are (Schmitt & Robertson, 1990).

To sum up the topic of validity and validation, it is important to recognize that there is no single way to establish that a test or criterion is a true index of what you want to measure. One should take all validity perspectives into account—at least implicitly—in evaluating a predictor. Ideally, selection procedures are used that predict future performance, sample relevant content, and measure the constructs that they are intended to measure. This ideal is seldom achieved. Some selection procedures do a good job of predicting future performance but fall short on construct validity. On the other hand, the construct validity of some procedures is well established but fall short on providing a basis for forecasting future performance. The next chapter has more to say about how the various instruments stack up on validity.

\*Points to ponder:

1. Compare and contrast the various strategies of determining the validity of a predictor or construct. These are often called different types of validity, but the consensus among I/O psychologists is that validity is one thing (unitary) and that these are just strategies for determining validity. What is meant by this assertion?
2. Very often organizations give very little consideration to the choice of the criterion when evaluating criterion-related validity and instead use only the readily available criterion measures. What considerations should an organization give to the choice of the criterion used in assessing the criterion-related validity of a selection instrument?
3. How do you go about constructing an expectancy table in assessing criterion-related validity?
4. Compare and contrast the concurrent and predictive models of assessing criterion-related validity.
5. Describe the major factors that can lead a researcher to underestimate the criterion-related validity of a selection instrument. Why do these factors lead to underestimations rather than overestimations?
6. Some I/O psychologists argue that the corrected validity coefficient is the most important consideration. If this is substantial, then this is sufficient evidence to support use of the selection instrument. Others are more skeptical and argue against use of a selection instrument if the uncorrected validities are too low. What are the arguments for and against each approach?
7. What is validity generalization and how does it compare to the situational specificity hypothesis? Outline the steps taken to assess validity generalization?
8. Discuss the practical implications of validity generalization and situational specificity? What are the implications for how an organization goes about selecting employees?
9. Describe the steps taken when using content validation. When is content validation most appropriate in assessing the validity of a selection instrument?
10. In the chapter on research methods, it was argued that content, criterion-related, and construct validity were not different types of validity and that there is only one validity (unitary approach to validity). What does this mean for how an organization goes about evaluating a selection instrument?
11. Consider a situation in which an organization has a selection instrument that does a good job in predicting future performance or some other important criterion but there is little understanding of the constructs that the instrument measures. In this case should the organization

use the instrument to select people for jobs? What are the arguments for and against?  
12. Is face validity ever an important consideration? What are the pros and cons?

### Fairness and legality.

In the attempt to ensure fairness in employment, a variety of laws, regulations, and guidelines impose constraints on employers. The present chapter focuses on the United States, but numerous countries around the world have passed legislation in the attempt to ensure fairness in the selection of employees (Chao & Nguyen, 2005).

This has not always been the case. Up until the early 1900s, employers in most countries around the world could do whatever they wished in their selection and treatment of their employees. In the U. S. this became known as the employment-at-will principle and was set forth in a widely cited court case deliberated in 1884 (Payne v. Western & Ad. R.R. Co., 82 Tenn. 507, 518-19, 1884).

*“Men must be left without interference to buy and sell where they please, and to discharge or retain employees at will for good cause or for no cause, or even for bad cause, without thereby being guilty of an unlawful act per se. It is a right which an employee may exercise in the same way, to the same extent, for the same cause or want of cause as the employer”*

In this case Payne was a merchant who sold consumer goods in Tennessee who sued the Western & Atlantic Railroad. The railroad had told their employees that any of them who traded with Payne would be fired. Payne sued saying that this action ruined his business, but the court ruled that employers had complete freedom in their decisions about employees and could do as they wished even the decisions were bad ones. The other side of employment-at-will is that the employee also has complete freedom and is not bound to employment unless there is a contractual agreement. Dissenting judges in this case warned in their opinion that this ruling gave the employer too much power, but this ruling set a precedent that became a standard in U. S. employment law.

The reader may be surprised to hear that employment-at-will principle is alive and well in the United States. Employers still have a lot of discretion in their hiring, firing, and treatment of employees. The U. S. is one of only seven nations with employment-at-will. Although employers in the U. S. have relatively few restrictions on their selection decisions, laws passed over the last century in the U. S. in response to gross inequities have eroded the employment-at-will principle. Employers cannot fire an employee for serving the public interest such as in jury duty, refusing to commit an illegal act, or for whistle blowing, to name a few of the exceptions passed down in court decisions. When there is an explicit contract between employer and employee such as a professional athlete’s contract with a ball club or a union’s collective bargaining agreement, the employer is held to the terms of that contract. Interestingly, courts have also ruled that contracts can also be implied. An example would be an employee who at the time they are recruited is led to believe that there is employment for life or that they will keep their job as long as they perform satisfactorily. Employees have been able to successfully sue employers who violate implied contracts and this represents another exception to employment-at-will. To avoid these lawsuits, many companies in the U. S. require new hires to acknowledge that they are going to

work for an employment-at-will employer. Among the statutory limitations on employment-at-will are laws such as

- ✿ The Wagner act and other laws legitimating and regulating labor unions
- ✿ Child labor laws
- ✿ Equal pay act (1963)
- ✿ Civil Rights Act (1964/72/91)
- ✿ Age Discrimination Act in Employment(1967/86)
- ✿ Affirmative Action
- ✿ Americans with Disabilities Act
- ✿ Vocational Rehabilitation Act (1967)
- ✿ Pregnancy Discrimination Act (1978)
- ✿ Immigration Reform/Control Act (1986)

The focus of attention here is on the laws, regulations, and guidelines intended to eliminate unfair discrimination against minorities, women, the disabled, and the older worker.

\*U. S. Civil rights legislation.

The most notable of the U. S. Federal laws pertaining to racial and sexual discrimination is the Civil Rights Act of 1964. Title VII of this act makes it illegal "to fail or refuse to hire or to discharge any individual, or otherwise to discriminate against any Individual with respect to his compensation, terms, conditions, or privileges of employment because of such individual's race, color, religion, sex, or national origin." The employees covered under this act and other civil rights legislation in the U. S. are described in table 14.5. The employers who are held responsible under the Civil Rights Act of 1964 and those who are exempt are listed in table 14.6.

What is a Federally protected class under U. S. laws?	
Sex, both male and female (Civil Rights Act, Equal Pay Act)	Color (Civil Rights Act)
Race/Ethnicity (Civil Rights Act)	Age (over 40, Age Discrimination in Employment Act)
➤ African American	Religion (Civil Rights Act)
➤ Asian American	Disability (Americans with Disability Act)
➤ White	➤ Current
➤ Native American	➤ Previous
National origin (Civil Rights Act)	➤ Perceived
Qualified veteran (Vietnam Era Veterans' Readjustment Assistance Act; Americans with Disability Act)	Pregnant Woman (Pregnancy Discrimination Act; Americans with Disability Act)

Table 14.5: Protected Classes Under U. S. Federal Civil Rights Laws

United States Civil Rights Act – Title VII	
What employers are covered?	What employers are exempt?
➤ Private employers with at least 15 employees.	➤ Bona fide tax exempt private clubs.
➤ Federal, state, and local governments.	➤ Native American tribes.
➤ Employment agencies.	➤ Individuals denied employment due to national security concerns.
➤ Unions.	➤ Publicly elected officials and their personal staff.
➤ Americans working abroad for American companies	

Table 14.6: Type of Employers Covered by the U. S. Civil Rights Act – Title VII

\* U. S. Executive Order 11246 (1965).

U. S. President Lyndon Johnson issued executive order 11246 prohibiting employers having contracts with the federal government in excess of \$10,000 from discriminating on the basis of race, religion, color, sex, or national origin. Employers are required to take affirmative action to ensure that job seekers are recruited, considered for employment opportunities, and are treated without regard to their race, color, religion, sex, national origin, qualified disability, and veteran status. Affirmative action under this executive order did not mean that employers must hire or give preference to women, minorities, the disabled, or veterans. Instead, affirmative action requires that employers not only do not discriminate but also take steps to make sure that persons in these protected groups are aware of job opportunities and are encouraged to apply for any positions that are available. Employers are required to file timetables and goals on which they report areas of underutilization of protected groups and specify the steps they are taking to remedy these deficiencies. The Department of Labor has the authority to investigate and monitor compliance with the order.

\* The EEOC Uniform Guidelines.

The Equal Employment Opportunity Commission (EEOC) is the federal agency created under the Civil Rights Act of 1964 to administer the law.

<http://www.youtube.com/watch?v=MgEymmeMKEM>

The EEOC has wrestled mightily with defining and enforcing fair employment practices and has tried, without much success, to write a clear set of rules fostering the idea that if a test (or other selection device) has adverse impact, the employer must prove that it is valid. The most noteworthy of these is a set of guidelines published by the federal government in 1978 to interpret Title VII of the Civil Rights Act of 1964, the law that prohibited discrimination in employment (Equal Employment Opportunity Commission, 1978). The EEOC Uniform Guidelines are rules set down by a panel of experts from industry, government, and education for fair employment practices. The guidelines call for systematic record keeping on employment decisions (e.g., tabulation of who is and isn't hired, validity studies). According to the four-fifths



rule, a hiring procedure has “adverse impact” against a group when the selection rate for the group is less than 80 percent of the group with the highest rate of selection. If there is adverse impact, the employer must show that the hiring procedures are valid. Although they helped somewhat at the time, these rules also proved subject to varying interpretations. Newer evidence on validity generalization and other technical issues has eroded their value. Moreover, the political winds have altered the philosophy that the rules were designed to clarify.

Does the Requirement Have Adverse Impact on Members of a Protected Class?		
Occurs when the selection rate for one group is less than 80% of the rate for the highest scoring group		
	Male	Female
Number of applicants	50	30
Number hired	20	10
Selection ratio	.40	.33
$.33/.40 = .83 > .80$ (no adverse impact)		

Table 14.7: Examples of Applications of the EEOC 4/5ths Rule

\*U. S. Supreme Court decisions interpreting the Civil Rights Act of 1964.

Laws only become meaningful when they are interpreted in the courts. The Civil Rights Act of 1964 and other civil rights laws have been interpreted in court cases at the various levels of the U. S. court system. The rulings of judges in court cases have fleshed out the civil rights laws and have made clear when selection practices are illegal and when they are legal. They have also made clear what employers can do to comply with the law. Two early Supreme Court decisions were especially important.

\*\*Griggs v. Duke Power (1971).

The Duke Power Co. in North Carolina had a policy of only promoting employees out of the labor pool to higher skill jobs if they had a high school degree and passing scores on two aptitude tests. Black applicants tended to score lower on the two tests and were less likely to have a high school degree. Consequently, Duke Power was more likely to pass over black candidates for promotion than white candidates. The Supreme Court ruled that if selection procedures have an adverse impact on the hiring of a protected group, the employer must show that the procedures are valid even if the discrimination was unintentional.

\*\*Albermarle Paper Company v. Moody (1975).

As in Duke Power, the company's use of tests led to discrimination against black employees in promotion. Unlike Duke Power, the company in this case presented evidence for the validity of the selection procedures. The Supreme Court ruled against the employer largely on the basis of the poor technical quality of the validation research. Employers were expected to adhere to the technical guidelines set forth in the Uniform Guidelines of the EEOC.

\*Age Discrimination in Employment Act (ADEA).

The original act was passed in 1967 and later amended in 1978 and protects employees between the ages of 40 and 70 from discrimination on the basis of age. Employers may use age as a qualification but only if it is a legitimate and necessary qualification (also called a bona fide occupational qualification or BFOQ). An example of a BFOQ is sex in the hiring of bathroom attendants or requirement that an applicant can see in the hiring of a pilot. There are relatively few BFOQs, however, and the courts are unlikely to accept age, sex, race, national origin, color, and religion, as legal bases for hiring unless the employer can produce empirical evidence that they are legitimate and necessary.

Take a look at this video about age discrimination in broadcasting:

<http://www.youtube.com/watch?v=lambNYKJ4R0>

\*Americans with Disability Act (1990).

This act makes it unlawful to discriminate against a qualified person with a mental or physical disability and is receiving increasing attention in the U. S. Federal courts (Robertson, 2009). Disability is defined broadly as including a physical or mental impairment that substantially limits one or more of the major life activities, a record of such an impairment, or being regarded as having such an Impairment. The act states that employers may not discriminate against a qualified individual in employment decisions, including selection, promotion, and placement. A qualified individual with a disability is defined as an individual with a disability who, with or without reasonable accommodation, can perform the essential functions of the employment position.

For an overview of ADA check out:

<http://www.youtube.com/watch?v=OyX5OyNAvPw>

\*U. S. Civil Rights Act of 1991.

During the 1980s the U. S. Supreme Court in several court decisions made it much harder for a person filing a suit (the plaintiff) to prove discrimination. Griggs v. Duke made it clear that if there is adverse impact against a protected group, the burden is on the employer to show that selection procedures are valid. In Wards Cove Co.. Inc. v. Atonio et al (1989), however, the U. S. Supreme Court placed much more of a burden on the plaintiff. In the Civil Rights Act of 1991 Congress stated, "the decision of the Supreme Court in Wards Cove Packing Co. v. Atonio, 490 U. S. 642 (1989) has weakened the scope and effectiveness of Federal civil rights protections."

The Civil Rights Act of 1991 strengthened the 1964 act in some respects and weakened it in others. The act made into law the concepts set forth in *Griggs v. Duke Power* (1971) and also extended the Civil Rights Act of 1964 by allowing the plaintiff to have a jury trial and to claim punitive damages. The Civil Rights Act of 1991 also banned race norming on predictor measures. In other words, employers were prevented from creating separate cutoff scores or test bands for minorities and nonminorities.

\*Disparate treatment vs. disparate impact discrimination.

As the result of the interpretation of the law in the courts, there are two types of discrimination cases involving Title VII of the 1964 Civil Rights Act.

The key factors in disparate impact discrimination cases are:

1. Discrimination where organizational selection standards are applied uniformly to all groups of applicants but the net result is to produce differences in the selection of various groups: e.g., requirement of a high school degree has the effect discriminating against minorities or the use of height requirement has the effect of discriminating against women.
2. Plaintiff (the person claiming discrimination) needs to demonstrate statistically that the practices affected various groups differently.
3. If the plaintiff can show a statistical impact against a group, the defendant (the organization denying discrimination) must demonstrate business necessity for using the requirement, show that the requirement is a Bona Fide Occupational Qualification, or present evidence of the validity of the selection procedure.
4. The plaintiff must also show that there is no equally valid alternative practice available that has less adverse impact.

The key factors involved in disparate treatment cases are:

1. Discrimination where there may be no adverse impact against a protected group but there is intentional discriminatory treatment.
  2. The plaintiff must demonstrate that he or she belongs to a minority group, applied for the job, was qualified for the job, and was rejected.
  3. Plaintiff proves the defendant's argument is a pretext and the true reason was prejudice.
- With disparate impact (or adverse impact) cases, the intentions of the employer are secondary to the actual impact that a hiring procedure is having on a protected group. In disparate treatment cases, the intentions of the employer are important as well as the impact of the hiring procedures.

\*The Cleary (1968) model of test fairness.

Psychologists have attempted to provide statistical models that allow a more precise identification of when employee selection is fair and when it is unfair. The most widely discussed and debated is Cleary's (1968) model of test fairness. Typically bias in the use of a selection procedure is defined in terms of adverse impact. Bias exists where members of one group (e.g., minority, disability, or gender group) score lower on the procedure than another group, and the lower scores result in adverse impact in which the lower scoring group is hired at

a lower rate. Another definition is in terms of differential validity. According to this approach, a biased predictor is one that is more valid for one group than another whereas an unbiased predictor is equally valid in both groups. The Cleary model defines bias in terms of differential errors of prediction rather than adverse impact of differential validity. According to this model, a selection procedure can still be fair even though groups differ in their scores and hiring rates as long as the use of the procedure does not lead to under or over prediction for either group. Specifically

*“A test is biased for members of a subgroup of the population if, in the prediction of a criterion for which the test was designed, consistent nonzero errors of prediction are made for members of the subgroup. In other words, the test is biased if the criterion score predicted from the common regression line is consistently too high or too low for members of the subgroup (Cleary, 1968).”*

Regression analysis is used to test for bias. The reader will want to return to the research methods chapter to review correlation and regression. To determine whether bias exists under the Cleary model, scores on the predictor (i.e., the test) and the performance criterion are collected using either a predictive or a current employee procedure of criterion-related validation. Employees are also separated into groups based on those attributes that are potential sources of bias such as race, gender, disability, and age. By plotting the predictor scores and the criterion scores for each employee, a scatterplot is constructed. The line that best fits that scatterplot is the regression line. Knowing the score on the predictor one can predict the criterion score using the regression line. The ovals in figures 14 represent the scatterplots. The narrower the oval and the closer it comes to converging on the regression line, the more accurate the predictions of criterion scores from predictor scores. The least accurate prediction is achieved with a scatterplot that is a circle such as the one in figure 14.6.

To determine bias on the predictor, the regression line is determined for the entire group of employees (the common regression line) and then separately for the subgroups (the minority and the nonminority regression lines). Test bias exists under the Cleary model where the groups differ on the errors made in predicting from the common regression line. Figure 14.2 is an example of a selection procedure that has adverse impact in which the minority group scores lower on the predictor than the majority group and is hired at a lower rate. The predictor is equally valid in the prediction of the criterion for the minority and majority groups. Although the minority group is lower on the criterion measure than the majority group, the use of the common regression line does not over predict or under predict the criterion for either group. (Craig Russell calls this the two hot-dogs on a stick situation ([http://www.ou.edu/russell/whitepapers/Cleary\\_model.pdf](http://www.ou.edu/russell/whitepapers/Cleary_model.pdf)).

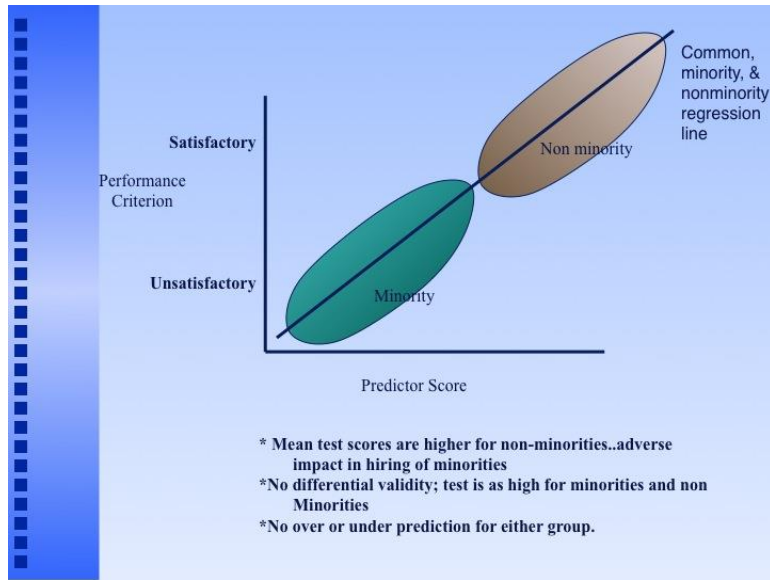


Figure 14.2: Example 1 of No Test Bias Using Cleary Model

Another example of no test bias is illustrated in figure 14.3 (Russell's cheeseburger: [http://www.ou.edu/russell/whitepapers/Cleary\\_model.pdf](http://www.ou.edu/russell/whitepapers/Cleary_model.pdf)). Here the mean scores on the predictor are the same for the minority and majority groups, and there is no adverse impact from using the same cutoff score. The test is differentially valid in that it is less valid for the nonminority group than the majority group. The regression line is the same for the minority, majority, and combined groups. Consequently, using the common regression line does not lead to underprediction or overprediction, and the errors in prediction for the two groups are the same. Given the higher validity for the majority group, there are more errors of prediction in using the predictor in the minority group but the errors are not systematically biased for or against either group.

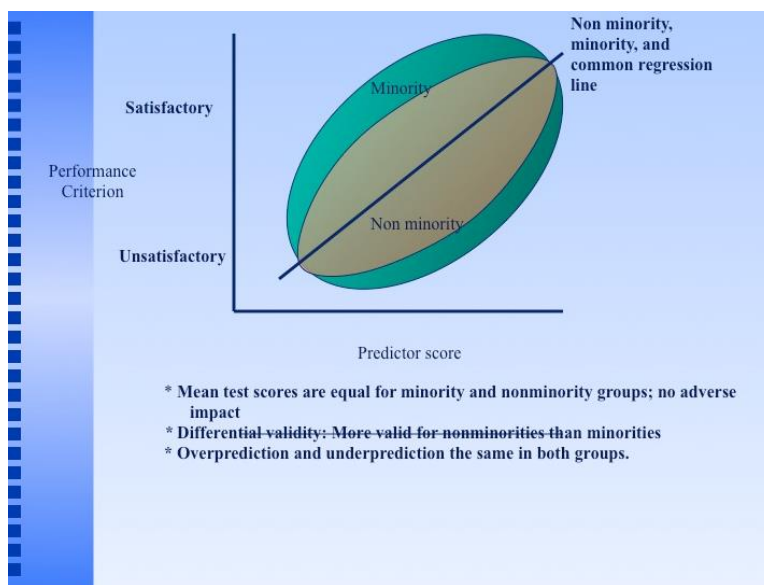


Figure 14.3: Example 2 of No Test Bias Using Cleary Model

Figure 14.4 presents a case of test bias (called the two hot dogs on separate sticks by Craig Russell, [http://www.ou.edu/russell/whitepapers/Cleary\\_model.pdf](http://www.ou.edu/russell/whitepapers/Cleary_model.pdf)). In this case the predictor is equally valid for the minority and nonminority groups. However, there is adverse impact against the minority group in which the use of a common cut score is likely to lead to a lower rate of hiring in the minority group than the nonminority group. Assuming that the same cut score on the predictor is used in selecting minorities and nonminorities, the use of a common regression line leads to underprediction of the success of the minority group and overprediction in the majority group. For instance, assume the predictor ranges from 0 to 100 and the cut score is 50. The average score of the minority group is 25 and the average score of the majority group is 75. A majority person with a 60 is more likely to be hired than a minority person with 40 even though the regression analysis shows that a 40 is likely to lead to higher performance on the criterion for the minority group than a 60 in the majority group.

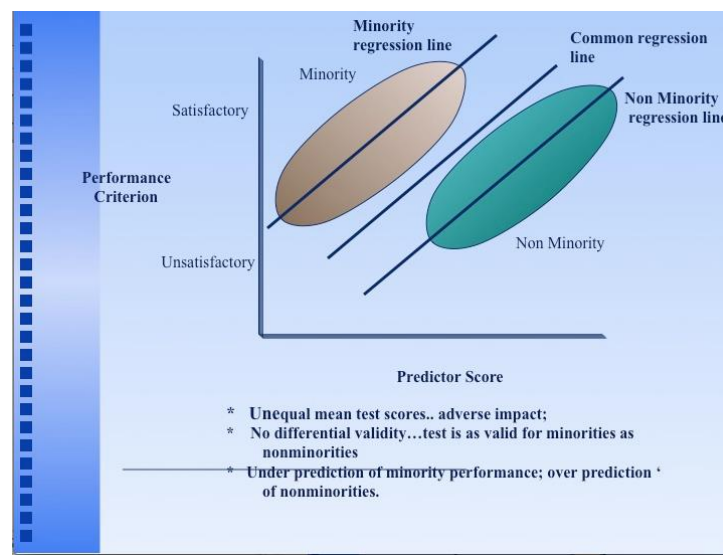


Figure 14.4: Example 1 of Test Bias Using Cleary Model

Figure 14.5 provides another example of an unfair predictor in the Cleary model. In this case there is no adverse impact. The mean scores on the predictor for the minority and majority group are equal. Also there is differential validity. The validity of the predictor for the minority and majority groups is the same. However, the use of a common regression line leads to overprediction of the performance for the minority group and underprediction of performance for the majority group. For instance, if one used a score of 50 as the cutoff on the predictor and applied this to both minority and majority applicant, the regression analysis would suggest that the nonminority applicants perform better and the minority applicants more poorly than would be predicted from the common regression line. A majority applicant with the same score would perform much better than a minority applicant with the same score.



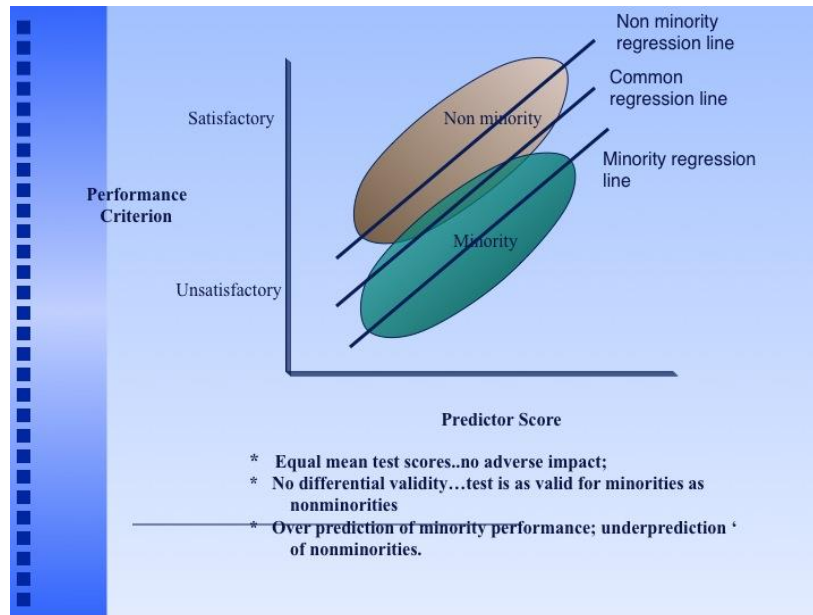


Figure 14.5: Example 2 of Test Bias Using Cleary Model

A third example of unfair bias is illustrated in figure 14.6. Here there is no adverse impact. The mean scores on the predictor are the same for the minority and nonminority groups. The predictor is differentially valid for the two groups. It is more valid for the nonminority group than for the minority group. The test is biased under the Cleary model because the common regression line leads to overprediction for the minority group and underprediction for the majority group.

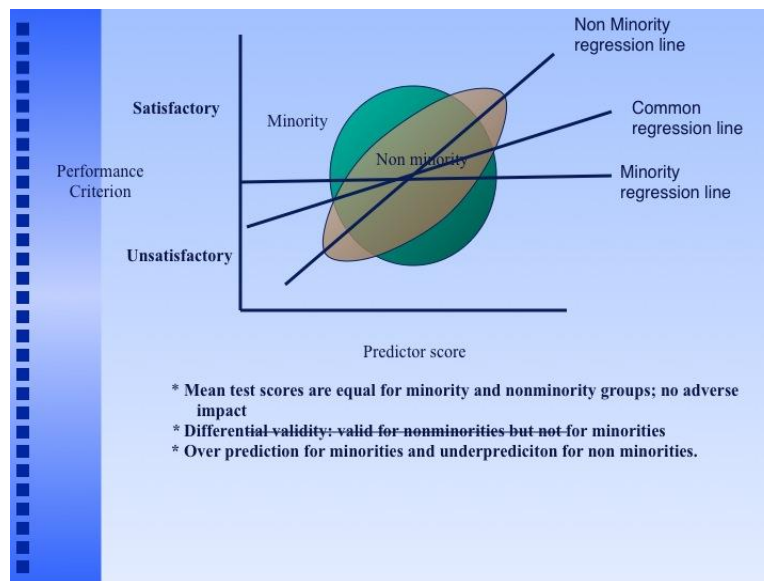


Figure 14.6: Example 3 of Test Bias Using Cleary Model

The issues surrounding the use of the Cleary model are more complex than the simplified description provided here. The reader who wishes to delve into the technical details and the

various debates surrounding the model are referred to Bartlett, Bobko, Mosier and Hannan (1978), Bobko and Bartlett (1978), Chung-Yan & Cronshaw (2002), Lautenschlager and Mendoza (1986), Norborg (1984), Meade and Fetzner (2009), Meade and Tonidandel (2010), and Schmidt and Hunter (1982).

From a moral-ethical standpoint it is incumbent upon employers to make sure a selection device is valid whenever it is shown to have adverse impact against an identifiable group. Suppose that the predictiveness of a test is comparable for whites and a minority group and there are no systematic differences between the groups in underprediction or overprediction, but that the minority group scores are on average lower than the white group. In this case, the test is fair according to the O'Leary model. It is also fair according to the EEOC Uniform Guidelines and case law, and employers are well within their legal rights in using the test to select employees (Gutman, 2012). However, the fairness of their use is still questionable if the success criteria are biased, or social patterns of discrimination exist that account for the lower scores on the test. In short, one is back to the subjective realm of social values.

#### \*Values and fairness.

Laws and statistical models can help the employer think through the issues, they can never completely resolve the dilemmas associated with ensuring fairness in employee selection decisions. In the end fairness is a matter of values. Suppose that one could agree on an approach that leads to the selection of people who provide the best fit to jobs. Moreover, suppose one could *prove* that selection procedures produce happier, more productive employees. Would this satisfy everyone? The answer is "no". In this case, the argument involves the larger impact of the strategy on society and the question of whether the strategy is fair. Happy and productive employees are unquestionably beneficial both to themselves and their employers, and to some extent, to society at large. But what about the people who lose out in the matching process, especially if they are only slightly less qualified than the others? More importantly, what if those people are disproportionately women, ethnic minorities, older people, or some other group that has been discriminated against in the past? Certainly *they* are not happier and more productive than they would have been had they been hired, and if they remain unemployed or underemployed in large numbers, one could argue that society is not better off either. Thus the issue boils down to who benefits how much from the attempt to achieve a good person job match, and who suffers how much as a result. In other words, it becomes a question of social values. The ongoing adjudication of the U. S. 1964 Civil Rights Act is testimony to the complexity of the issue of fairness. One conclusion is clear, however. Employers can no longer simply do as they wish in selecting employees. They must attend to the fairness of these decisions and a first step is to make sure that selection procedures comply with the law.

Points to ponder:

1. Why is the fairness of a selection procedure so much harder to assess than reliability and validity? Why does fairness in the selection of employees remain such a controversial, hot issue?
2. Validity and fairness are often at odds in the selection of employees. Why is this the case?



3. Ensuring fairness in the selection of employees is in large part a moral issue requiring moral sensitivity and judgment. Thus, one could argue that it is immoral to use selection instruments that screen out entire classes of people such as minorities, women, the disabled, and older workers. Could one argue that it is also immoral to use unreliable and invalid procedures to ensure that these same groups are hired? Why or why not?
4. Describe the most important U. S. laws that were passed to ensure fairness in selection.
5. What is affirmative action in the U. S.? Why is it so controversial?
6. What is adverse impact and how is it assessed in the U. S.?
7. Describe some of the important U. S. Supreme Court cases on fairness in selection.
8. Outline the steps taken in establishing a disparate treatment case of discrimination in the U. S. Outline the steps taken in establishing a disparate impact case of discrimination.
9. The discussion in this chapter focuses on U. S. laws, regulations, and court cases. Go to the following links to review employment discrimination law in the European Union:  
[https://en.wikipedia.org/wiki/Employment\\_discrimination\\_law\\_in\\_the\\_European\\_Union](https://en.wikipedia.org/wiki/Employment_discrimination_law_in_the_European_Union)  
 Go to the following link to review the Discrimination (Employment and Occupation) Convention passed in 1960 by the International Labour Organisation (ILO) and endorsed by over 150 countries:  
[http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100\\_INSTRUMENT\\_ID:312256](http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312256)
- How do these statements and laws compare to the U. S. civil rights laws and guidelines?
10. Examine the various examples set forth in the discussion of the Cleary model of test bias. Do you accept what the model has to say about the fairness or unfairness of these tests? Why or why not?

### Utility.

The dictionary defines utility as the extent to which something is useful. An employer may find that a selection tool is valid and reliable and yet not useful in the sense that it doesn't yield information that improves on the selection of employees. The concept of utility in decision theory is complex and includes a consideration of economic benefits and costs (Roth, Bobko & Mabbon, 2002; Sturman, 2012). In the context of employee selection, utility is the degree to which a selection device improves the quality of a personnel selection system, beyond what would be obtained if the instrument had not been used. Determining utility could involve estimating the monetary costs and benefits associated with selection with and without the predictor, but not always.

The present discussion restricts the consideration of utility to the dictionary definition. Regardless of the specific formula used to estimate utility, the various formulae and approaches identify several factors that increase the utility of a predictor measure in the selection of employees increases with increases in the

1. the validity of the predictor increases, the selection ratio decreases,
2. the length of time the applicants selected stay on the job,
3. the number of the people hired into the position,
4. the variation in the performance of employees in the job prior to the use of the selection procedure (i.e., there are wide differences in the performance of present employees). If performance is measured as either success or failure, as in the Taylor-Russell (1939)

tables, this would imply that utility is greatest when the proportion of those succeeding is .50 and the proportion failing is .50. The variance of this proportion is calculated by taking the product of the proportion succeeding and the proportion failing and is largest when the proportions are .50.

5. the number of people tested.
6. selectivity (in other words, the selection ratio decreases)

This chapter considers two specific approaches to estimating utility. The Taylor-Russell table approach focuses on three of these factors: selection ratio, validity, and base rate of success (Taylor & Russell, 1939). The Brogden-Cronbach-Gleser approach is more comprehensive and incorporates all of the above factors and more (Brogden, 1949; Brogden & Taylor, 1950; Cronbach & Gleser, 1965; Schmidt, Hunter, McKenzie, & Muldrow, 1979).

\*Using the Taylor-Russell tables to calculate utility.

The Taylor-Russell tables incorporate three major considerations determining whether it is a good idea to use a selection strategy at all, and if so, how to use a particular selection device to implement that strategy:

1. selection ratio (SR) is the proportion of the applicant pool that is hired (i.e., the number of positions to fill divided by the total number of applicants)
2. level of validity of the procedure ( $r$ ) is the correlation between scores on the predictor and scores on the criterion measure.
3. base rate of success (BRS) is the proportion of applicant pool that could do the job satisfactorily if the current selection procedure was used. This is the same as the proportion of current employees who currently succeed on the job and were not hired with the selection procedure that is being evaluated.

The Taylor-Russell tables were developed to help employers apply this logic to various kinds of selection decisions (Taylor & Russell, 1939). Thus, the employer could estimate SR and BR and then consult a table to see how much improvement a selection system with a given validity coefficient is likely to provide. Each of these factors is considered followed by examples of how the Taylor-Russell tables are used to estimate utility.

The criterion-related validity coefficient is one of these three factors. This has already been discussed and is not repeated. Suffice it to say that the higher the criterion-related validity, the more utility associated with a predictor measure. But validity is not enough to estimate utility. Employers need to address two other factors at the same time.

The selection ratio or hiring rate involves a comparison of hiring needs with the available labor supply, usually expressed as a ratio (selection ratio, or number of vacancies you want to fill divided by the estimated number of potential candidates) (Alexander, Barrett, & Doverspike, 1983). It is computed by dividing the number of positions that the employer needs to fill by the number of applicants. As the ratio approaches or exceeds 1:1 it makes no sense to select: The employers will need to hire everyone they can drag through the door. As the ratio gets smaller, the potential utility of selection goes up. If it were 1:10, for example, the employer would have a

good chance of getting a superior crop of recruits, provided they could identify them.

The base rate of success (BRS) builds on what the employer defines as a superior (or successful) employee. This one gets a little complicated. The basic idea is that how valuable any particular quality of selection is to an employer depends on how much it matters that the person selected does well. If an employer must fill a job that requires little more than a warm body and that virtually everyone performs well, investing in a fancy selection system makes little sense. If, however, an employee's poor performance has important consequences for the employer and the ability to perform well is possessed by relatively few applicants, good selection becomes extremely valuable. Thus, the proportion of employees who are currently satisfactory based on whatever standards the employer normally uses in judging performance represents a baseline against which the value of selection is judged. Usually it is expressed in terms of the actual or estimated proportion of hires that are considered successful before using an explicit selection system, a value known as the base rate of success (BRS). If 90% of previous hires were successful (or the employer estimates that 90% of applicants would succeed), it would take an extremely valid selection test to make much difference. If the base rate is 20%, even a moderately valid test might help, assuming a favorable selection ratio. Of course if none of current employees are succeeding, it is unlikely any new selection procedure will help. There is something perhaps fundamentally wrong in the design of the work and selection isn't the answer. All other things held constant, the greatest gains from using a new selection tool occurs when the base rate of success is 50%.

Table 14.8 provides a segment of the Taylor Russell tables. Along the left side are the base rates of success (.30, .50, and .70, in this example) and the level of criterion-related validity for the predictor measure. Along the top are the selection ratios. The value in the table corresponding to a particular base rate of success, validity, and selection ratio is the proportion of employees expected to succeed if the predictor measure is used in a top-down manner to hire employees. The values within the table are sometimes referred to as success rates. By comparing the success rate to the base rate of success employers can estimate the incremental improvement in successful employees associated with using the predictor. Suppose there is a base rate of success of .30 (i.e., 30% of current employees hired with current procedures are successful) and the selection ratio is .40 (i.e., the number of positions that the employer needs to fill divided by the number of applicants is .40; for every 10 applicants you need to hire 4 of them). If the validity of the selection tool has a validity of .25, the employer can expect .39 as the proportion of employees hired with the tool who are successful. In other words, the employer can expect the proportion of employees to succeed with the new tool to increase from .30 (the base rate) to .39 (with the use of the new tool), a healthy, 30% increase. Table 14.9 provides another example of the use of the Taylor-Russell tables.

Base Rate of Success (BRS)	Level of Validity	Selection Ratio (SR)										
.30	$r$	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
	.00	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30	.30
	.25	.50	.47	.43	.41	.39	.37	.36	.34	.33	.32	.31
	.50	.72	.65	.58	.52	.48	.44	.41	.38	.35	.33	.31
	.75	.93	.86	.76	.67	.59	.52	.47	.42	.37	.33	.32
.50	$r$	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
	.00	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50	.50
	.25	.70	.67	.64	.62	.60	.58	.56	.55	.54	.52	.51
	.50	.88	.84	.78	.74	.70	.67	.63	.60	.57	.54	.52
	.75	.99	.97	.92	.87	.82	.77	.72	.66	.61	.55	.53
.70	$r$	.05	.10	.20	.30	.40	.50	.60	.70	.80	.90	.95
	.00	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70	.70
	.25	.86	.84	.81	.80	.78	.77	.76	.75	.73	.72	.71
	.50	.96	.94	.91	.89	.87	.84	.82	.80	.77	.74	.72
	.75	1.00	1.00	.98	.97	.95	.92	.89	.86	.81	.76	.73

Source: Adapted from H. C. Taylor and J. T. Russell, "The Relationship of Validity Coefficients to the Practical Effectiveness of Tests in Selection," *Journal of Applied Psychology*, Vol. 23, 1939, pp. 565-578.

Table 14.8: The Taylor Russell Tables

# Considering Base Rate, Selection Ratio, and Test Validity Together

When  $r = .00$ , using the test results in a success rate equal to the base rate, which is the same thing as not using the test. If there is no correlation between the test and success on the job, then using the test will not improve selection.

As the correlation gets larger, the success rates go up. For example, in the first column of entries in the first table, the base rate is .20, and the selection ratio is .10. When the correlation is .25, the proportion successful is .34, which is up .14 from .20. When the correlation is .50, the success rate is .52, which is up .32 from .20.

When the selection ratio is small, changes in the size of the correlation make a lot of difference in the success rate.

When the selection ratio is large, however, changes in the size of the correlation make little difference. For example, in the first table when the selection ratio is .9 and the correlation is .25, the expected success rate is .21, which is up .01 from .20. When we move from a correlation of .25 to a correlation of .95, the success rate goes from .21 to .22, which is not much. This happens because when the selection ratio is large, we basically have to hire anyone who applies; we cannot be selective.

	Base Rate = .20		Selection Ratio		
	Validity coefficient	.10	.30	.50	.90
$r = .00$		.20	.20	.20	.20
$r = .25$		.34	.29	.26	.21
$r = .50$		.52	.38	.31	.22
$r = .95$		.97	.64	.40	.22

	Base Rate = .50		Selection Ratio		
	Validity coefficient	.10	.30	.50	.90
$r = .00$		.50	.50	.50	.50
$r = .25$		.67	.62	.58	.52
$r = .50$		.84	.74	.67	.54
$r = .95$		1.00	.99	.90	.56

Table 14.9: An Example of Using the Taylor-Russell Tables

The impact of various selection ratios and base rates on the utility of a selection tool with a given validity is illustrated in figure 14.7. The scatterplot depicts a situation in which the employer tested and hired all the applicants for a job and then followed up and determined whether each

applicant succeeded or failed on the job. Each dot in the plot represents an applicant. Using the scatterplot, the manager in charge of hiring could investigate various hiring scenarios and the utility of each. The cutoff on performance that defines success and failure could be manipulated to examine the consequences of a more or less stringent definition of job success (i.e., base rate of success). The cutoff on the test score that is the minimum score required for new hires could be manipulated to examine the consequences of hiring a larger or smaller proportion of applicants (i.e., selection ratio). The Y-axis is the level of performance achieved by each employee and the dashed horizontal line between 50 and 60 identifies the minimum level of performance that the employer has decided is acceptable. Along the X-axis is the score on the selection tool (a test, interview, whatever). The vertical line on the X-axis represents one possible cut score we can use in selecting future applicants. The validity of this selection tool is about .65, meaning as scores on the predictor increase, the level of performance on the job increases. In this illustration, the validity is held constant while examining the effects of variations in the selection ratio and the base rate.

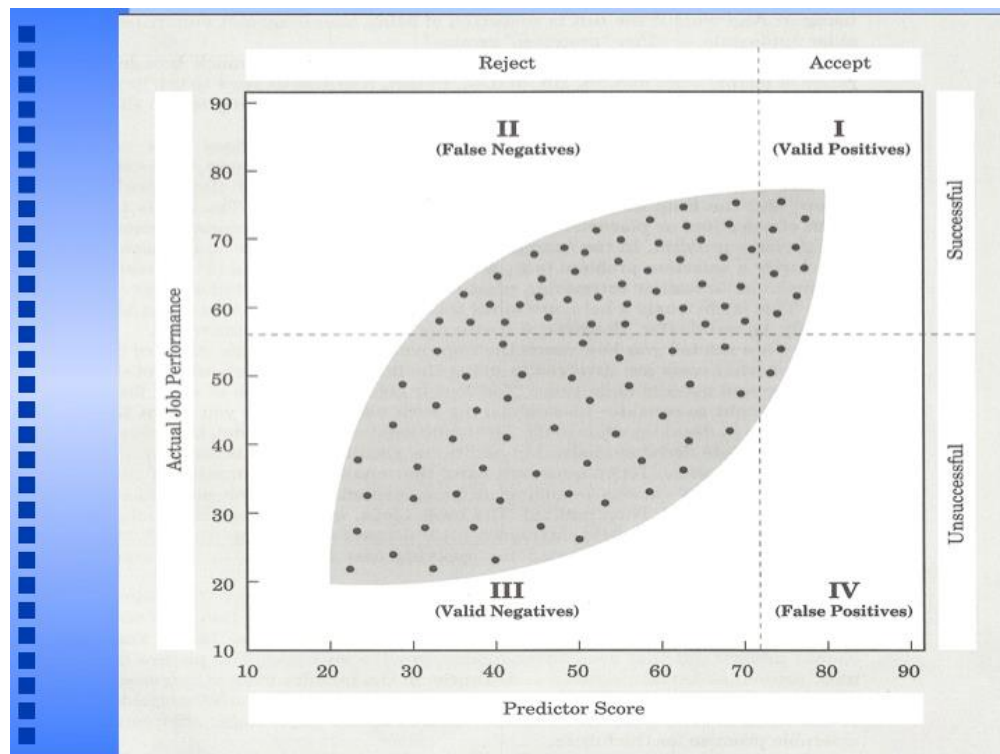


Figure 14.7: False Positives, Valid Positives, False Negatives, and Valid Negatives in the Selection of Employees

Assume that an employer needs to hire 10 of the 100 applicants for a position. In the example below the cut score is located at a point that will allow the employer to hire the 10 people needed (i.e., such that 10 of the 100 expected applicants will score to the right of the line and thus fall in quadrant I or IV). Given the other parameters in this case, one can expect about eight of them to succeed (quadrant I) and two to fail (quadrant IV). Although not perfect, the result is considerably better than the five successes (50% base rate or BR) one could expect without the

test: about 30% better, in fact. Once the principles involved in this simple example are understood, the diagram can be used to explore a variety of alternative decisions and cases. Consider what would happen if the performance standards (horizontal cut-off line) shifted up or down. With a lower standard, one could move the cut score to the right and still hire the 10 people needed; with a higher standard, one would have to accept some with lower test scores to fill the jobs. What if the test was less valid (closer to a round scatterplot), or the SR was .5 rather than .1 (i.e., you would have only 20 applicants scattered over the space and would have to take 10 of them)? In either case, one would have to move the cut score on the test to the left to enable hiring 10 people, and more of those hired would fail. Even under the conditions shown, one might decide to set the decision cutoff at a point that would ensure 10 successes rather than 10 hires, thereby requiring several overhires.

\*Brogden-Cronbach-Gleser utility formula.

A comprehensive assessment of the utility of a selection procedure requires calculating more than the incremental validity of the procedure. One also needs to know how the use of the procedure benefits the organization monetarily and whether these benefits outweigh the monetary costs of using the procedure. The Brogden-Cronbach-Gleser formula is one approach to providing this estimation (Schmidt, Hunter, McKenzie & Muldrow, 1979; see table 14.10). The formula provides an estimate of the monetary gain to the organization of hiring the top scoring applicants on the predictor measure after taking into account the cost of the selection procedure. Note that the formula calculates the monetary gain over the period of time that applicants hired in the position stay with the organization. The monetary gain is relative to the monetary benefits of hiring employees using chance selection. One can use the same formula to estimate the monetary benefits of using alternative procedures. The utility of a procedure is calculated by comparing the monetary benefits of using the predictor compared to the benefits yielded by other predictors.

Evaluating the utility of a selection procedure using the Brogden-Cronbach-Gleser Utility formula. This gives an estimate of utility by estimating the amount of money an organization would save if it used the predictor to select employees relative to what would be obtained if employees were selected randomly.
Savings = (n) (t) (r) (SDy)(m) – cost of testing
➤ n = Number of employees hired per year
➤ t = average tenure of employees
➤ r = predictor validity
➤ SDy = standard deviation of performance in dollars...this is the difference in performance (measured in dollars) between a good worker who is one standard deviation above the mean and an average work at the mean of performance. It is estimated by taking 40% of the average salary of employees in the position for which employees are hired.
➤ m = mean standardized predictor score of applicants who are selected using the procedure.

Table 14.10: The Brogden-Cronbach-Gleser Utility Formula



The original formulation used cost accounting to assess the components and for that reason it was not used very often. Frank Schmidt and his colleagues stated that aspects of the model such as SDy and m could be estimated using more subjective procedures. These two items of information in the formula require some explanation. The SDy is the standard deviation of the performance of employees in the position expressed in terms of dollars. For many years this was considered the primary obstacle to using the formula. Schmidt and his colleagues propose a shortcut to estimating the standard deviation of performance in dollars that consists of taking the difference between the yearly salary of a good worker and the salary of a worker one standard deviation lower on the performance scale (Schmidt, Hunter & Pearlman, 1982). If this is too difficult to calculate, an even simpler method is to multiply .40 by the yearly salary in the position.

The m value is the standardized predictor score of applicants who are selected using the predictor (see tables 14.11 and 4.12). An assumption is that the applicants are selected top-down by taking the highest scores on the predictor. If one knows the mean scores of the applicants who are hired and those not hired as well as the standard deviation of the scores for all applicants, then it is possible to estimate m. Take the mean score of those hired and subtract the mean score of those not hired. Divide this by the standard deviation and then add the standard deviation to this.

Calculating m (mean standardized predictor score of applicants selected using the procedure)
➤ For example, we administer a test of mental ability to a group of 100 applicants and hire the 10 with the highest scores. The average score of the 10 hired applicants was 34.6, the average test score of the other 90 applicants was 28.4, and the standard deviation of all test scores was 8.3. The estimate of m is:
➤ $(34.6 - 28.4) / 8.3 = 6.2 / 8.3 = ?$

Table 14.11 Calculating the Mean Standardized Predictor Score of Applicants (m)

If applicant scores are not known, then a second approach to calculating m is to simply use table 14.12. Knowing the selection ratio, the employer can estimate the standard score on the predictor of selected applicants. For instance, a selection ratio of .10 is associated with an m of 1.76. Once all the items of information are available the values can be plugged into the formula to obtain an estimate of the dollar gain from using the predictor to choose among applicants. Below are several examples.

Example 1:

Suppose

- 10 auditors are hired per year
- the average person in this position stays 2 years
- the validity coefficient of the selection procedure is .40
- the average annual salary for the position is \$30,000

- we have 50 applicants for ten openings
- the selection procedure costs \$10 per applicant to test
- the utility would be:

$$(10 \times 2 \times .40 \times \$12,000 \times 1.40) - (50 \times 10) = \$133,900$$

Selection Ratio	m (standardized predictor score of those hired using the predictor)
1.00	.00
.90	.20
.80	.35
.70	.50
.60	.64
.50	.80
.40	.97
.30	1.17
.20	1.40
.10	1.76
.05	2.08

Table 14.12: Estimating the Standardized Predictor Score of Applicants Who Are Selected Using the Predictor from the Selection Ratio (Assume Top Down Hiring)

Example 2:

- 200 people are hired per year.
- The average person in this position stays 4 years.
- The validity coefficient is .30.
- The average annual salary for the position is \$60,000.
- There are 500 applicants and 200 openings.
- The cost of testing is \$15 per applicant.
- Utility is

$$(200 \times 4 \times .30 \times \$24,000 \times .97) - (500 \times 15) = \$5,587,200 - \$7,500 = \$5,579,700$$

Example 3:

- 200 employees are hired per year.
- The average person in the position stays 4 years.
- The validity coefficient is .40.
- The average salary in the position is \$60,000.
- We have 500 applicants for 200 positions.
- The cost of testing is \$10 per applicant.
- Utility is

$$(200 \times 4 \times .40 \times \$24,000 \times .97) - (500 \times 10) = \$7,449,600 - \$5,000 = \$7,444,600.$$



Points to ponder:

1. Describe the alternative approaches to assessing the utility of a selection instrument.
2. Provide an example of a situation in which a highly valid and reliable instrument is useless.
3. Describe the Taylor-Russell tables as they are used in assessing utility. In your description answer each of the following questions:
  - a. What do the Taylor-Russell tables define as utility?
  - b. How are validity, base rate of success, and selection ratio defined in the Taylor-Russell tables?
  - c. How do validity base rate of success, and selection ratio impact utility?
4. In figure 14.2, what are false positives, false negatives, valid positives, and valid negatives? In what types of situations would it be worthwhile and when would it not be worthwhile to use a procedure with very high levels of false positives? In what types of situations would it be worthwhile and when would it not be worthwhile to use a procedure with a high level of false negatives.
5. Describe the Brogden-Cronbach-Gleser Utility Formula and each of the components of this formula. What were the shortcut approaches to assessing some of the components used by Schmidt and associates?

Using predictor measures to make selection decisions

Once predictor measures are chosen on the basis of their reliability, validity, utility, and legality, the employer must use the scores on the measures to choose among applicants. In using predictors to make decisions, the employer must address three questions. What score on the predictor measure serves as the cut-point in determining which applicants are hired and which are rejected? How can the employer set a band around the cut score to take into account errors of measurement? If the employer uses multiple predictor measures, how are these measures combined to make decisions?

The top-down procedure.

There are a variety of ways of determining the score on the predictor measure that serves as the cut-score. A top-down procedure involves simply ranking the applicants on the basis of their scores on the predictor measure and then offering the position in order of rank until the positions are filled. If an employer needs to hire 10 applicants to fill a position, and the predictor measure appears valid and reliable, then the employer could take the top ten scorers and offer them positions. If an applicant refuses the offer, then the employer would move down the list of applicants in order of their scores until the position is filled. In general, there are research findings that show a top-down hiring strategy to be the more beneficial to productivity than alternative strategies (Schmidt, Mack & Hunter, 1984). Employers could use the top-down procedure of selection without setting a minimum score on the predictor measure. In this case, any score could feasibly qualify the applicant for an offer as long as additional hires are needed to fill the positions. In many cases, however, employers wish to set a minimum score. In this

case, it is possible that no applicants are extended offers if they fail to meet the minimum score on the predictor measure.

### The Angoff procedure in setting cut scores.

The most widely used method of setting a minimum cut score on a predictor measure is the Angoff method (Angoff, 1971; see table 14.13).

Item number	Proportion of minimally competent employees estimated to answer item correctly
1	.90
2	.10
3	.05
4	.50
5	.80
6	.90
7	.40
8	.30
9	.25
10	.60
11	.75
12	.70
13	.75
14	.65
15	.50
16	.50
17	.60
18	.55
19	.45
20	.30
Sum = 10.55	

Cutoff score using unmodified approach: 10.55

Cutoff score using Modified Approach  
with a Standard Error of Measurement  
(SEM) = 2.0: 8.55

Table 14.13: Example of Using Angoff Procedure to Set Cutoff Scores on a Test

First, judges assign to each item in a test a probability that a minimally competent, borderline candidate would answer the item correctly. In doing this, they do not think of the best or the poorest qualified applicants, but instead identify those whose performance just barely surpasses what is acceptable. The judges are then given the individual items on the predictor measure. If it were a mental ability test consisting of 50 items, the judges are given all 50 items and for each

item they estimate the probability that a minimally competent candidate correctly answers the item. Each judge states a probability for each item in the test. These probabilities are then summed across the items for each judge to calculate the minimum performance level (MPL) on the predictor. The MPL is basically how the expert judge expects that the minimally competent candidate would score on the predictor measure. The MPLs for all the judges are averaged and this average constitutes the cut score for the predictor measure.

An example of an application of the Angoff method is presented below. As seen, for each item there is an estimate of the proportion of the minimally competent candidates that the judge expects will pass the item. Across the 20 items the sum of the proportions is 10.55 and this value represents the unmodified cutoff score on the test. Applicants scoring at or above 10.55 are considered qualified and those scoring below are considered unqualified. A modified approach takes into account errors of measurement by using the Standard Error of Measurement for the test and subtracting this from the cutoff score set using the Angoff procedure.

The Angoff method is only as effective as the accuracy of the judges. For this procedure to succeed, the employer must establish a clear criterion of what constitutes minimally acceptable performance that is well defined in terms that relate to the item content of the predictor measure. Also, it is essential that the judges are trained so that they have in mind these criteria rather than relying on idiosyncratic conceptions of the position. Although admittedly subjective, the procedure appears to work reasonably well.

#### Banding of cut scores.

If ignoring absolute scores and hiring the top scoring applicants is too lenient, then hiring only those who meet or surpass a cut-score is perhaps too rigid for many selection situations. Banding is a practice in which an interval around the cut-score is set and applicants within this interval are considered equally qualified even though they differ on their scores. There are two primary reasons for banding. The first is to increase the diversity of the workforce while at the same time complying with the laws and selecting the most qualified applicants possible. The second reason is to take into account in selection decisions the error that is always present in predictor measures. Banding attempts to acknowledge and incorporate this error in deciding among applicants. Is it reasonable, for instance, to consider an applicant who scores 71.5 on an 80-point exam as necessarily less qualified than an applicant who scores 72 on the same exam? The rationale behind banding is that if a difference between two scores falls within what one might expect on the basis of errors of measurement, decision makers ought to consider applicants with scores falling within this band as equally qualified even though they differ on their scores. The Angoff technique is often modified by taking the cutoff score and then going to a score that is 1 or more standard error measurement units below the cutoff to set the actual cut-off score. The modified and the unmodified cutoff scores are presented in the example for the Angoff procedure. The courts have supported the modified Angoff procedure as a fairer procedure (Truxillo, Donahue & Sulzer, 1996).

Expectancy banding is a simple type that builds on the notion of an expectancy table, discussed earlier in the chapter. In the example in table 14.14, a test is used to select among applicants and the success of these applicants on the job are later assessed. It is found that 85% of those

applicants scoring in the 522 - 574 range succeed, whereas those in the other intervals have lower probabilities of success. These intervals are used to band applicants so that applicants within each band are treated as equivalent in their scores on the test. One problem with this type of banding is that it does not take into account errors of measurement and is based largely on eyeballing the distribution of scores and the success rates within various intervals of scores.

Expectancy Bands		
Band	Test Score Range	Probability of job success
A	522 - 574	85%
B	483 - 521	75%
C	419 - 482	66%
D	0 - 418	56%

Table 14.14. Example of Expectancy Banding

Standard error of measurement (SEM) banding is a second type. Three calculations are needed to construct an SEM band. First, the SEM is calculated. This is an index of the degree of error in testing an individual applicant. It is calculated using the standard deviation of the observed scores and the reliability of the measure (standard error of measurement =  $SD \times \sqrt{1 - r_{xx}}$ ). The lower the reliability of the measure, the more error is contained in the score of any one applicant on the test.

$$SEM = s_x \sqrt{1 - r_{xx}}$$

The second set of calculations involve converting the observed scores on the predictor measure to standard-scores (z scores). This is done by subtracting each observed score from the mean and then dividing this difference by the standard deviation. Computing z scores in this manner, converts the observed or raw scores to standard deviation units and the mean of these z scores becomes zero.

The third calculation is to multiply the SEM by the z score on the normal distribution that corresponds to the desired width of the band. The typical z-score that is used in SEM banding is 1.96. Under the normal distribution, 95% of the observed scores in the population fall in the middle of the curve between +1.96 z scores above the mean of the population and -1.96 z scores below the mean of the population (see figure 14.8). 97.5% of the population scores fall below the +1.96 z score on the normal distribution. After obtaining the product of 1.96 (or some other z score) and the SEM, this product is used to construct the band. To obtain the low score on the band one subtracts the product from the top observed score on the predictor measure.

The scores falling in the band between the highest observed score and the score that is the 1.96 X SEM point below this highest score are considered equivalent. For instance, assume that one has administered a 100 item test of ability to 15 job applicants (see figure 14.9). The scores on the test range from 95 to 55. The mean and standard deviation of this distribution of scores are 74.67 and 16.31, respectively. Also, the reliability of the test is .92. Based on the standard deviation

and the reliability, the standard error of measurement is computed as 4.61. The product of 1.96 and the standard error measure is 9.04. The band is now constructed by taking the score that falls 9.04 below the top score, or 86. An employer who used SEM banding in this manner, would treat all the scores between 95 and 86 as equally high on mental ability and those below 86 as equally low.

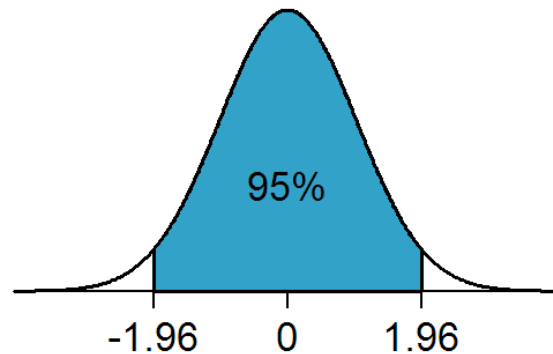


Figure 14.8: Areas Under the Normal Distribution  
Corresponding to 1.96 Z Scores Above and Below the Mean

It is important to keep in mind several important points with regard to banding. First, although the example describes two bands consisting of the acceptable high scores and the unacceptable low scores, an employer could create more than two bands using whatever z-score thought appropriate to creating these bands. Second, the use of banding presumes that there is sufficient error of measurement to justify its use. The more reliable the measure, the smaller the standard error of measurement and the less justified the use of bands. On the other hand, if the reliability is quite low, the standard error of measurement is high and one can question whether one should use the predictor measure at all. In a measure with very low reliability, the band could conceivably include almost all applicants rendering the predictor measure useless. A third issue is whether the band is fixed or slides as applicants are hired or rejected. With a fixed band the cutoff point does not vary. With a sliding band the band is readjusted as the applicant pool grows smaller. If the top scoring person turns down the offer of a job, a sliding band approach would take the next highest score and use this to construct a new band. A fourth issue concerns the use of the standard error of measurement. Because the selection decision is concerned with differences in scores between applicants, the preferred type of standard error is the standard error of the difference (SED) between scores. The typical recommendation is to take the top score and establish the band by going to the score that is 2 SED units below that score.

The fifth and perhaps most important issue is how to decide among applicants who fall within a band. Once a band is created, the employers must still make a choice among applicants within that band. They could choose at random among applicants in the band. Another option is to give preference to minorities or women in the interest of diversity. Still another is to consider other factors that employer might feel is important at that time, such as more employees with particular types of past work experience or education. All three, but especially the first two, are quite controversial. Those who have ever taken a test and fell short of the cutoff for the desired grade by a fraction of a point will have experienced the frustration associated with a strict top-down,

cutoff approach. In those circumstances, the idea of creating a band of scores to take into account errors of measurement is quite attractive. However, imagine competing for a job, obtaining one of the highest scorers on the test, and then discovering that applicants scoring substantially lower on the test was treated as equally qualified. In those circumstances, the person probably feels cheated and considers the selection procedure unfair. Issues of fairness inevitably enter into the use of banding and there is no real resolution to the conundrum. A strict top-down approach to decisions is most advantageous to ensuring a productive workforce, but banding provides an opportunity for the employer to enhance diversity of the workforce. The only real resolution is for the employer to make clear the values that are guiding selection decisions and to decide on some balance between diversity and productivity.

**Raw scores and z-scores for each Applicant on the mental ability test**

Applicant	Mental ability Raw score	Mental ability Z-score
1	95.00	1.24683
2	92.00	1.06287
3	90.00	.94023
4	85.00	.63363
5	75.00	.02044
6	70.00	-.28616
7	65.00	-.59275
8	60.00	-.89935
9	55.00	-1.20595
10	50.00	-1.51255
11	45.00	-1.81914
12	85.00	.63363
13	83.00	.51100
14	79.00	.26572
15	91.00	1.00155
Total N	15	15

Reliability = .92

Mean = 74.67

Standard deviation = 16.31

Standard error of measurement = 4.61 (see formula)

Z score = (raw score – 74.67)/16.31

Top score (95) – 1.96\*4.61 = 9.036

SEM band: 95 - 86

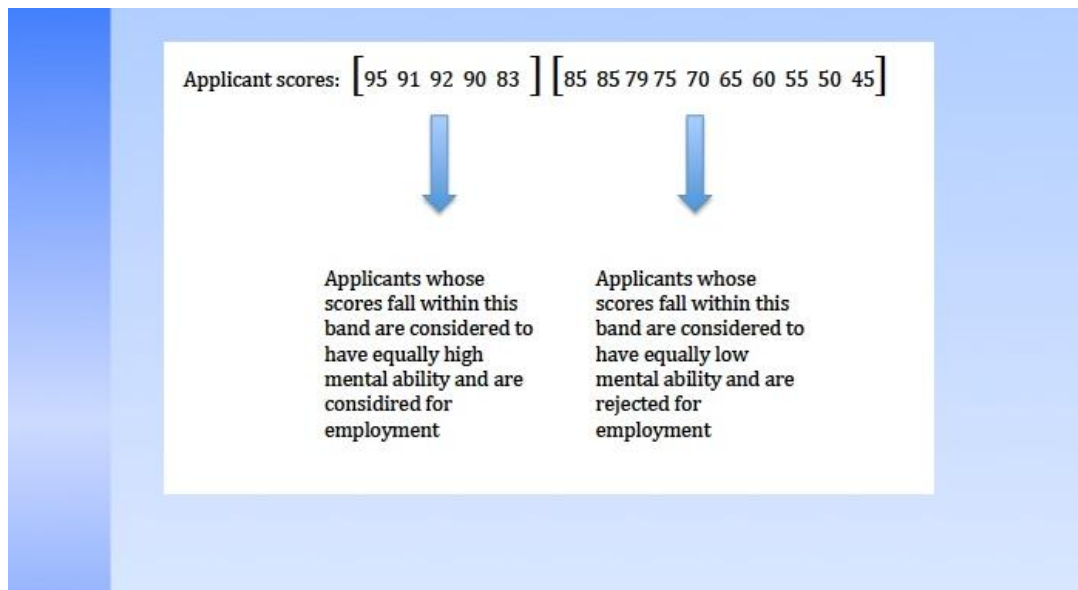


Figure 14.9: Banding Using Standard Error of Measurement

#### Using multiple predictor measures.

So far, only one kind of selection scenario has been considered: the case in which there is a single predictive score for each candidate, a selection cut score, and a single choice point. It is more often the case that selection decisions involve multiple predictor measures. If testing is used, it often consists of a battery of tests, each aimed at a different trait or job component. Take, for example, the situation described in table 14.15. Each applicant is tested on six predictors: general intelligence, an interview score, past experience, a score on a personality inventory, scored personal references, and a weighted application form. The scores are transformed so that the lowest score is 0 and the highest score is 12. The question is how to use this information to decide among the applicants. In the example, each predictor is equally important and the employer simply sums the scores on each predictor to compute a total that is used in the selection decision. There are alternative approaches to combining the information. How this is done matters a great deal insofar as effectiveness, fairness, or any other outcome is concerned.

Candidate	General Intelligence	Interview Score	Past Experience	Personality Inventory	Scored References	Weighted Application	Total Score
Ralph	12	10	9	11	9	12	63
Susan	8	11	12	6	8	10	55
Charlie	7	5	6	4	9	9	40
Oliver	5	6	4	3	2	6	26
Mary	5	3	2	2	3	5	20

The predictor scores were transformed so that 12 = the highest possible score and 0 = the lowest possible score.

Table 14.15: Example of Combining Predictor Scores to Make a Selection Decision (Simple, Unweighted Composite)

\*Compensatory strategy of combining predictors.

The most common strategy, particularly when a test battery is involved, is the compensatory approach. Here a low score on one predictor is offset by a high score on another. In the example depicted in the table 14.15, one might simply add the scores on the six predictors for each applicant. Using a top-down strategy, and assuming that there is one position to fill and only these applicants are available, the employer might then make an offer to the applicant with the highest sum (i.e., Ralph in the example above). If that applicant turns down the offer, the employer turns to the applicant with the next highest sum (i.e., Susan in the example). A simple sum of scores is compensatory in that different patterns of scores can lead to the same total. So in the example in table 14.15, Susan has relatively low scores on the personality inventory and general intelligence test but compensates for these shortcomings with high scores on the interview and past experience. There are other decision rules other than this top-down procedure. The employer might set a cutoff score for the total and only seriously consider applicants who surpass this cutoff. For instance, a minimum total score of 40 might be required to offer employment to an applicant. If none of the applicants achieve this score (as is the case above), then the employer seeks additional applicants rather than hiring one of the applicants.

Taking a simple sum of test scores assumes that they are equally valid as predictors of future job success. This is rarely the case. Another approach is to have experts attach a weight to each predictor in computing the sum. For instance, experts may decide that the decision maker should give a weight of 3 to the general intelligence score and a weight of 2 to the interview score. A more sophisticated quantitative approach than this is to use multiple regression. In simple bivariate correlation the correlation is computed between scores on each predictor and the measure of success on the job without considering the other predictors. In multiple regression the weight that achieves the highest possible prediction of the criterion is calculated. Determining the optimal weights for the predictors requires a statistical analysis – specifically a regression analysis. In the example a multiple regression is computed that identifies the best fitting combination of the predictors in the prediction of the criterion. The predicted score on the criterion for each applicant is then estimated using the test scores for the applicant and the regression weights. The decision maker establishes a cutoff score on the criterion and uses the predicted scores in a top-down procedure. When a multiple regression approach is taken, it is crucial that the statistical model generated through statistical procedures is tried out with another sample to see how much shrinkage occurs in the overall prediction. Regression weights are often unstable particularly when based on small samples and require a cross-validation to determine if they are trustworthy.

A compensatory model is the most widely used model for several reasons. For one, the model reflects how traits and personal characteristics are related to success on many jobs. It is frequently the case that employees can compensate for their weaknesses as long as they possess a trait or characteristic that they can use to compensate. An employee who is only average in cognitive ability might compensate, for example, with good communication skills. A second reason for the widespread use of compensatory models is that researchers show that decision makers are more comfortable with a compensatory approach when the process is done intuitively (remember Mr. Megabucks). A compensatory logic tends to dominate intuitive judgments of others.



\*Noncompensatory strategies of combining predictors.

Two other decision strategies involve noncompensatory elements. In the multiple cutoff approach, each predictor is considered separately and has its own cut score. A candidate must exceed the cutoff on all scores to qualify. In the example above employers may decide that they will give no further consideration to applicants who score below 5 on any of the predictors. Using this decision rule, only Ralph and Susan are considered for employment and the others are rejected. The decision makers could then choose between these remaining two applicants using a top-down (i.e., the highest total score) or some other decision rule. This approach is most appropriate when success requires at least a minimal amount of certain key characteristics. For example, an employee might not be able to compensate for low intelligence with a pleasant personality.

In the multiple-hurdle model of selection decision making proceeds in stages with a decision made at each stage based on a noncompensatory cutoff. The applicant must surpass a minimally acceptable score on a test before taking the next test. This strategy makes good sense where those who selected go through a long, costly training process and success requires exceptional capability. Selection of combat pilots for the U.S. military forces is a case in point. One would not want to entrust a multimillion-dollar aircraft and the lives of an entire crew to someone who failed to meet performance standards at any stage in the training process regardless of how well he or she did at earlier stages. Using a multiple hurdle strategy in the example in 14.5, one might first administer the cognitive ability test to applicants. Only those scoring six or higher are administered other predictors. The assumption is that the only applicants who deserve further consideration are those meeting a minimal score on cognitive ability tests and once this hurdle is passed, the other scores are considered. As is the case with the multiple-cutoff approach, the decision maker using the multiple hurdle approach assumes that there is a minimal level of a trait or other characteristic is required and that the applicant cannot compensate for a low position on one trait with higher positions on other traits. The multiple-hurdle approach is necessary when there are a lot of applicants and it is too costly to administer all predictors to all applicants. For reasons of cost, the less expensive predictors are administered early, whereas the more expensive predictors are administered later in the selection process.

\*Clinical vs mechanical combination of predictors.

Very often predictors are combined by the decision maker using personal ideas or hunches about what is most predictive. For example, decision makers may review the application, interviewer comments, test scores, and references and then make a global, subjective assessment of each applicant's potential for future success in the job. Individual decision makers will vary in the importance they place on the various predictors and whether they use a compensatory or noncompensatory approach to combining them. A contrasting approach is to use a mechanical combination in which the combining of the predictor scores is based on a formula. Every decision maker uses the same formula in combining the information. Scores on the predictors could be simply added or alternative schemes could be applied. The essential aspect of the mechanical approach is that it is based on an algorithm or rule that is applied consistently across

decision makers and avoids the subjectivity of the clinical combination. The evidence is overwhelming in support of the superiority of mechanical as opposed to clinical combination. In a meta-analysis of the research comparing clinical and mechanical combination predictors, the mechanical combination was found to yield higher criterion-related validities in the prediction of job performance, promotion and advancement, training success, grade point average, and other academic achievement (Kuncel, Klieger, Connelly, & Ones, 2013). Acknowledging the strong preference for using clinical judgments by experts over the use of an impersonal equation, the authors of this meta-analysis suggest several compromises. The mechanical methods could be used to screen applicants with the experts entering to render a clinical judgment about the remaining applicants. The combinations generated through mechanical means could be used as an anchor with experts making limited adjustments based on discussion and consensus. Experts could be asked to render a judgment using both mechanically generated combinations and clinically generated combinations. Whenever clinical judgment is used, several experts should be used and their independent judgments should be averaged to form a more reliable composite.

Points to ponder:

1. Outline the steps that are taken in using the Angoff procedure to set a cutoff for a test score.
2. Define banding and the alternative approaches to banding. Do you think it is fair to treat a group of test scores as essentially equivalent in making selection decisions? Why or why not?
3. What has the research shown with regard to the relative accuracy and validity of using a clinical vs mechanical approach to combining predictor information? What remains the dominant approach and why?
4. Under what circumstances would it be appropriate to use a compensatory approach to combining information to make a selection decision? Under what circumstances would a noncompensatory approach be more appropriate?
5. Compare and contrast a multiple cutoff with a multiple hurdle approach to combining information and making a selection decision. When is each more appropriate to use.

## Placement and Classification

Although much of the same logic used in selection also applies to placement, several noteworthy differences stem from the fact that in placement decisions a number of individuals and jobs are considered at once in the attempt to achieve the best overall fit. In some cases, all the people are assigned to jobs; in others, some are screened out (making one of the placement categories "elsewhere"). In very large organizations, such as the military, there are two sequential decisions: identification of a cadre of acceptable recruits (selection) followed by assignment (placement) into existing specialization categories. Gross initial assignment is generally followed by specific job placement, and a succession of subsequent placements, as the person's career unfolds.

At least three alternative approaches to placement are possible:

1. Equal chance model. If, for example, employers are only concerned with giving everyone an equal chance at every job and does not care about performance, they might select from among hirees with the flip of a coin or some other random process.

2. Place the best for each position model. If an employer was mainly concerned with how well those hired are able to perform the positions, they might want to optimize the fit of each employee to position. Where there are a few positions that are more critical than others they may want to place the most qualified employees in these positions and then assign the others on a random basis.
3. Place employees to provide employee development. If employers were mostly concerned with developing employees, they might rotate them among the positions or assign them to positions on the basis of where they need the most training and experience.

These are only three of many more possibilities. Since there are so many possible methods and so many possible attributes to consider, placement decisions are much more complicated than selection decision. This is probably the main reason placement has received less attention in either research or practice than selection (Zedeck & Cascio, 1984).

Once again, decision models can help employers organize their preferences and pick a strategy that best suits their objectives. To provide a brief illustration of how these models work, assume that the goal is assigning people to jobs to get the highest collective performance from the group. Assume, further, that all the jobs are classified according to the personal qualities (knowledge, skills, abilities, etc.) that contribute to successful performance and that all of the candidates are tested on these qualities. Finally, assume that there is an estimate of the relation of the personal qualities to performance. At this point, it is a simple matter for a computer to calculate which assignment pattern yields the highest expected performance aggregate. Hubert Brogden (1959) proposed the differential assignment theory (DAT) as a statistical model for optimizing the placement of hires to positions. This remains the most widely accepted model although other others have been proposed (e.g., Schoenfeldt, 1974; Morrison, 1977). Undoubtedly many of the jobs are filled with someone other than the most qualified people, because the best candidates are probably the most qualified for several jobs. Nevertheless, using the correct statistical analyses, one could identify a uniquely best placement strategy to achieve the stated goal of matching the people hired to jobs.

The research on selection far outweighs the research on placement. The military is where most of the work on placement has occurred for the obvious reason that placement is an important issue. Large numbers of soldiers are recruited and then must be classified into a variety of jobs. By contrast, placement is typically less of an issue in businesses. The focus is more often on finding the best persons for one or a few jobs rather than matching people already employed to jobs.

## Recruitment

Recruitment is a crucial HRM function that goes hand-in-hand with selection and is as important to the eventual success of selection procedures as the other factors discussed in this chapter. Recruitment is crucial to two phases of the staffing process. First, the employer must attract people to apply for the position. All other things held constant a selection procedure is useful only if employers have enough applicants to choose from. Imagine a situation in which the employer who hire everyone who walks through the door. Testing the applicants would have

little value and might even interfere with efforts to fill the positions. A second phase of the staffing process in which recruitment becomes important is after an offer of employment is made. If an employer selects the most qualified of a group of applicants but then is unable to convince them to join the organization, the time and cost invested in the development of selection procedures is wasted. As the next chapter will discuss, some of the procedures that are the best in terms of enabling an employer to accurately decide among applicants can elicit negative reactions from applicants and undercut the effectiveness of staffing.

#### Factors that affect applicant attraction and choice.

A large amount of research has examined the factors that attract applicants to an organization and that positively influence their decision to accept an offer. The findings of a meta-analysis of this research is summarized in table 14.16 (Uggerslev, Fassina, & Kraichy, 2012). As seen from the results, the perceived fit of the organization and the job to the characteristics of the applicant has the strongest relation to attraction. Characteristics of the job and the organization, recruiting procedures, recruiter behaviors, and the expectancy of an offer are also important. Based on the research findings, employers should make sure that applicants have positive perceptions of all these factors. Positive perceptions of the job and organization include the compensation package, job characteristics (e.g., autonomy, challenge, and development opportunities), the prestige and reputation of the organization, and the work environment (e.g. coworkers, diversity, job security). Recruiters should behave in a manner that conveys that they are trustworthy, competent, personable, and informative. Of these the most important is personableness ( $r_c = .38$ ). The recruiting process should be informative, credible, and fair in terms of procedural, informational, and interactional justice. The website is also a very important factor. The correlation with attraction increases to the extent that the website is aesthetically pleasing ( $r_c = .39$ ) and easy to use ( $r_c = .41$ ). The findings also suggest that the behavior of the recruiter is more important in the initial stages of recruiting and become less important in later stages whereas job/organizational characteristics and recruiting procedures become more important in the later stages. Far less research has been conducted on choice of job. Based on the findings that exist, the same factors that increase attractiveness also enhance choice. The notable exception is perceived fit, but it is important to note that this was based on small number of findings.

The effects of these factors on attraction and choice are consistent with what a signaling theory of recruitment would suggest (Celani & Singh, 2011). According to this theory, applicants are uncertain about the job and organization. To reduce uncertainty, they seek information through such means as exploring the company's website and questioning the recruiter and employees. To the extent that recruiting provides specific information on the job, organization, work environment, and other aspects of the position, uncertainty is reduced and applicants are better able to make informed decisions. It is seldom, however, that applicants are given all the information they need. In the absence of data, they form impressions from the signals conveyed during recruiting. These signals are sent by means of recruiter behavior, the manner in which the recruiting is conducted, the aesthetics of the website, and other cues associated with recruiting process. The basic lesson is that effective recruiting requires that employers create favorable first impressions and avoid sending signals that create negative impressions.

Recruitment Predictor	k	N	$r_{uc}$	$r_c$
Attraction				
Job characteristics	208	12,855	.30*	.36
Organizational characteristics	571	28,514	.31*	.36
Recruiter behaviors	211	7,079	.25*	.31
Recruiter process characteristics	737	47,773	.24*	.29
Perceived person fit	121	9,753	.55*	.63
Hiring expectancies	59	4,062	.21*	.25
Perceived alternatives	19	1,568	.04	.05
Job choice				
Job characteristics	11	751	.23*	.25
Organizational characteristics	8	722	.11*	.12
Recruiter behaviors	28	7,533	.12*	.13
Recruiter process characteristics	6	118	.15*	.18
Perceived person fit	6	523	.05	.06
Hiring expectancies	3	423	.19*	.20

*K* = number of correlations; *N* = number of participants;  $r_{uc}$  = sample size weighted mean uncorrected validities;  $r_c$  = corrected validities; \* = confidence interval for correlation excluded zero.

Table 14.16: Results of a Meta-analysis of the Antecedents for Recruiting Outcomes.

### Realistic job previews

Organizations can control the size of the applicant pool with a variety of familiar promotional techniques. Typically, organizations attempt to attract applicants by describing the company and jobs in the most favorable terms possible. One issue associated with the attraction process that has received research attention involves the tendency to oversell. This can set the stage for subsequent dissatisfaction when reality overtakes illusion (Wanous, 1976). A company's success in attracting the desired candidate is thus short-lived as disillusionment leads the employee to perform poorly or to quit.

The logical way to avert this unhappy situation is to provide a more realistic picture of the job at the outset, an approach that has been labeled realistic job preview (RJP). In RJP, the employer attempts to convey to the applicant exactly what he or she will do under what conditions; what opportunities there are for growth and advancement; what it takes to realize these opportunities; what risks there are; and so on. Frequently, the description includes selected illustrations presented on videotape or even through direct observation of people doing the job. The key is that such job samples are representative and honest rather than biased to show only the good features.

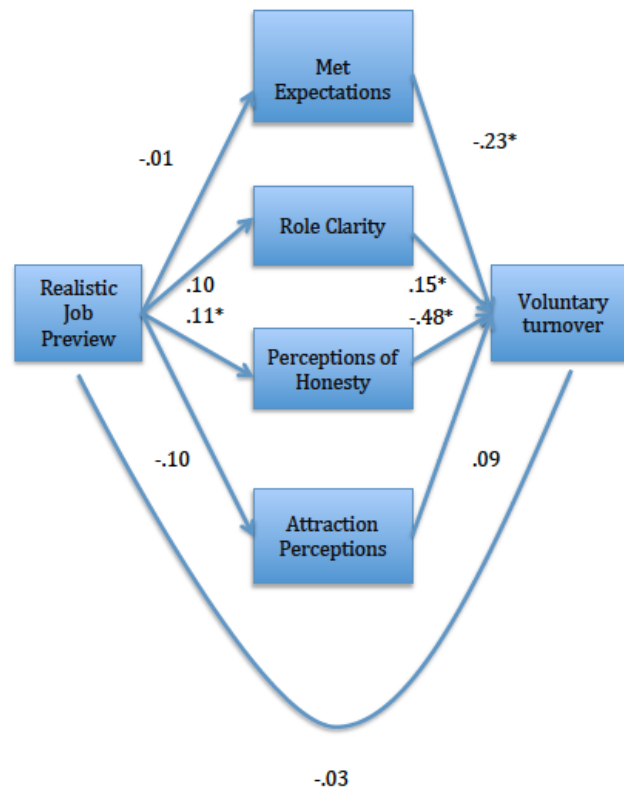
There is a risk, of course, that presenting even a few negative features might put the would-be employer at a competitive disadvantage. Unfortunately, overselling is the norm in modern society, whether the product is toothpaste, presidential candidates, or potential employers. Applicants have come to expect it. Thus, even minor disadvantages could loom large in a job

candidate's decision among employers, particularly if the choice is otherwise a close call. On the other hand, the contrast could favor the RJP employer by conveying an image of integrity, and if a job candidate joined a firm despite the realistic preview, there is a greater chance that it was for the right reasons.

So, which is it? Is honesty the best policy, or are the advertisers right when it comes to the practical matter of attracting job candidates? The answer provided by the literature is not as clear-cut as we might like. Early research seemed to support the virtue of RJP (Ilgen & Seely, 1974; Reilly, Tenopyr, & Sperling, 1979; Wanous, 1973), but later studies found little evidence for any of the presumed benefits (Reilly, Brown, Blood, & Malatesta, 1981; Guzzo, Jette, & Katzell, 1985). The opinions about whether an RJP works are somewhat mixed. In a meta-analysis of 21 experiments evaluating RJP, Premack and Wanous (1985) concluded, "RJPs tend to lower initial job expectations, while increasing self-selection, organizational commitment, job satisfaction, performance, and job survivals" (p. 706). Other reviewers are not nearly as encouraging.

In a meta-analysis of 20 experiments, investigators found very small effects of RJP in reducing voluntary turnover (McEvoy & Cascio, 1985). Figure 14.5 summarizes the correlations of RJP (presence or absence) with several variables thought to mediate RJP and turnover. The presence or absence of an RJP appear to have no relation to whether or not employees report that their expectations are met in the job and is negatively related to attraction to the organization. In other words, when employees received a RJP, they are less attracted to the organization. RJPs are intended to make the recruit aware of both negative and positive features of the job, and are probably surprising to recruits who are accustomed to receiving positive sales pitches from companies. RJPs are weakly related in a positive direction to the other mediators. When there is an RJP employees report that the organization is more honest in the recruiting process and they report more clarity in their perceptions of the work role for which they had been hired. Only perceptions of honest are related to lower turnover. The more honesty attributed to the employer, the lower the voluntary turnover. However, the higher the role clarity, the higher the voluntary turnover. The findings represent a mixed bag and are not particularly supportive of using RJPs. Indeed, the authors conclude, "managers might do well to look elsewhere when seeking turnover reduction strategies to implement prior to hiring" (p. 35).

Other researchers have attempted to identify the conditions under which RJPs are most likely to work and explain why they work in these conditions (McEvoy & Cascio, 1985; Meglino & DeNisi, 1987). Phillips (1998) found in a meta-analysis that RJPs are associated with lower turnover, higher performance, and higher initial expectations. They also report that RJPs administered later are more effective than those administered earlier in the recruitment process and that written RJPs were less effective than videotaped RJPs, which, in turn, were less effective than verbal RJPs. In a recent meta-analysis, investigators report that RJPs lower turnover primarily as the result of increasing role clarity and perceptions of employer honesty (Ernest, Allen & Landis, 2011). The essential findings of this analysis is reported in figure 14.10.



Numbers are the standardized path coefficients; N = 339; \* statistically significant,  $p < .05$ .

Figure 14.10: Standardized Path Coefficients in a Test of the Multiple Mediation Model for Realistic Job Preview Effects

### Moral/ethical vs. scientific questions

In the final analysis, honesty in recruiting is a moral/ethical rather than an empirical science in such dilemmas. We believe that organizations should make every effort to provide an honest description of what a job entails, whether or not they use a formal RJP approach and whether or not it scares off applicants, because it is the right thing to do. Scientific research should focus on how best to accomplish this goal rather than whether its tangible benefits outweigh its costs.

There is a serious danger in trying to apply science to moral/ethical questions of this sort because science can produce apparent justification for immoral or unethical acts. If lying turned out to produce a clear benefit to its perpetrator in some context, for example, it is no less dubious a practice even though it might gain credibility as a business practice. A society that misuses science in this way may find itself in deep trouble. Because of the sensitive position I/O psychology enjoys at the intersection of science and business, I/O psychologists must exercise extreme caution and avoid contributing to misuses. Throughout this text you can find numerous instances in which the opportunity (and indeed, the temptation) for such misuse is great. Fortunately, in the case of RJP, the evidence is not in serious conflict with the more ethical answer: Doing the right thing poses little risk and a reasonable chance of paying off, but what if it did not?

Misrepresentation in recruiting also occurs in the form of discriminatory practices that have the effect of weeding out minorities. For example, a segment of the television program 60 Minutes explores the practice of circumventing antidiscrimination laws by using employment agencies to screen out qualified minority candidates. The hiring organization instructs the agency to refer only attractive Caucasian women for particular job openings, thereby withholding the information entirely from black or Hispanic applicants.

The hiring organization is not guilty of illegal discrimination against minorities under current Federal laws and regulations because the individuals discriminated against do not appear in the employer's applicant pool. Employers have obtained similar results by simply discouraging minority applicants from applying (e.g. circulating the message that they are not welcome, or adopting selection practices that are known to make them feel uncomfortable). A municipal fire department in West Texas was highly successful in discouraging black applicants by emphasizing its redneck image. This stereotype, which was well recognized in the black community, had what is called a chilling effect by discouraging potential black applicants from applying for firefighter positions.

Points to ponder:

1. How does placement differ from selection? In what ways can they be treated as equivalent in what ways do they represent very different approaches to staffing?
2. Why is it dangerous to ignore the impact of recruiting when using selection instruments in hiring? How can selection impact recruiting and how can recruiting impact selection?
3. Describe a realistic job preview? What are the arguments for and against using them?

Conclusions

This chapter reviewed the basic ideas that underlie the philosophy and practice of the scientific approach to selection. The readers were exposed to the logic of the approach as well as the various strategies for implementing it. They were also asked to think about the implications for the employee, the employer, and society at large. In the beginning of the chapter the scientific approach was contrasted with the nonscientific or intuitive approach. It is instructive to return to this earlier discussion, review some of the common beliefs associated with the intuitive approach to selection, and examine the validity of these beliefs in light of the research.

1. First impressions:

Intuitive belief: In the decision on which applicant to hire for a job, the decision maker's first impressions of the applicants are the best guide.

What is known: There is no evidence that the first impression is more valid in a selection context. A structured selection procedure forces the decision maker to look at all the information on an applicant.

2. Selection as an art.

Intuitive belief: Evaluating and choosing among job applicants in the selection process is an art, not a science.



What is known: Employers can subject the selection process to scientific scrutiny and evaluate it on the basis of research. Those methods that work are used; those that don't, aren't. Structured procedures have been shown to lead to higher reliability and validity in judgments.

### 3. Selection depends on expertise

Intuitive belief: Being able to pick applicants who will provide the best fit to the job is an individual skill that some people possess and others do not.

What is known: The research on selection has failed to show that there is some ability to predict the best applicants. Structured procedures attempt to take the judgment away from the idiosyncrasies of the decision maker and impose a common framework on all decision makers.

### 4. Selection is a matter of commonsense

Intuitive belief: Commonsense is usually the best guide to making personnel selection decisions.

What is known: A structured selection procedure does not deny that commonsense might lead to valid selection decisions. However, one can also evaluate commonsense using scientific research. The problem with commonsense is that one person's "sense" is another person's nonsense.

### 5. Personal liking as a basis for selection

Intuitive belief: In hiring people, employers should consider how much others personally like the applicant in making the decision.

What is known: Personal liking is not entirely irrelevant especially when teammates are selected, but it is a poor basis for predicting future performance. Moreover, it is an approach that is vulnerable to stereotypes and biases. Structured selection procedures attempt to minimize the importance of personal liking and emphasize the match of the person to the requirements of the job.

### 6. Amount of time spent

Intuitive belief: Employers can make accurate hiring decisions quickly without spending a lot of time.

What is known: Structured selection procedures attempt to force the decision maker to carefully examine all the information and discourage quick shortcuts to decision making.

### 7. Questions asked

Intuitive belief: An experienced interviewer can size up an applicant with interview questions that they ask "on the fly".

What is known: Structured selection procedures generate bases for evaluation that are job-related and validated empirically prior to the actual encounter with the applicant.

### 8. The interviewer as expert reader of people

Intuitive belief: An experienced interviewer can accurately "read between the lines" in evaluating the answers of candidates to questions.

What is known: Structured procedures attempt to focus the decision maker on the critical information and discourage "reading between the lines."

### 9. The role of luck

Intuitive belief: Choosing among job applicants in personnel selection is mostly a matter of luck.  
What is known: Unstructured procedures often do not go beyond what could be achieved with random selection. However, structured procedures are based on the assumption that properly structured selection can surpass what one might achieve by relying on random selection of applicants.

In short, the selection of employees requires a rigorous, scientific scrutiny that requires hard work. Science may not be as much fun and certainly lacks the magical thinking of the intuitive approach. But if the objective is to find people who fit the work, scientific selection is the preferred approach. A scientific approach to selection is described by the following practices:

1. Employers should screen applicants for jobs based on the specific knowledge, skills, and abilities required in the job.
2. In screening applicants for jobs, employers should use standardized test results to evaluate their fit to the specific requirements of the job.
3. In conducting job interviews, interviewers should all ask exactly the same questions of all applicants.
4. In interviewing applicants, the interviewers should ask only questions of applicant that are relevant to the specific requirements of the job.
5. In interviewing applicants for jobs, interviewers should ask only questions that they can score numerically.
6. In choosing among job applicants, employers should base their decisions on selection procedures that they or others have evaluated thoroughly in scientific research.

The next chapter examines some of the specific predictors that scientific research has identified as possible bases for selection.

## CHAPTER 15: CONSTRUCTS AND METHODS IN EMPLOYEE SELECTION



## Introduction

The last chapter dealt with the basic ideas that underlie the philosophy and practice of matching people and jobs. The focus was on the logic of the scientific approach to selection, the various strategies for implementing it, and the implications of these strategies for the employee, the employer, and society at large. This chapter takes a look at the reliability, validity, usefulness (utility), and fairness of specific predictors that the scientific approach to selection has produced. In examining the research, the reader should keep in mind what was said about these four bases for evaluating a predictor in the last chapter and in the chapter on research methods and the distinction between construct and method. A predictor is a quantitative score varying from high to low on some dimension and used in making decisions about applicants in the selection process. A construct is defined as the underlying psychological attribute that this score purportedly reflects. A method is the means by which data are collected on applicants and a score is generated that is used in prediction of job success. A predictor is measured using a particular methodology and is intended to tap into an underlying construct that is hypothesized to predict success on the job. For example, in cognitive ability testing, the predictor is the score on a cognitive ability test indicating the relative level of ability of the applicant. Cognitive ability test scores are believed to reflect the construct of intelligence or mental ability of applicants. The method used is usually a paper-and-pencil test in which applicants are assessed with problems, puzzles, and other tasks believed to reflect ability.

The chapter starts with an examination of the alternative constructs that are commonly involved in employee selection including mental and physical abilities, interests, values, personality traits, knowledge, and skills. Next there is a review of the evidence on several methods used to measure these constructs. There are three unifying themes. First, not all predictors are equal. Some are better than others in predicting future success on the job, and some are better indicators of the constructs that they are purported to measure. Second, all have fallen short of perfection and none should be used as the sole basis for selection decisions. Third, employers can compensate for the failures of any one predictor by using more than one in making selection decisions.

## Constructs used in selection

Two general categories of constructs are used to screen and select applicants for employment. The first consists of relatively stable traits, including worker abilities, occupational interests, values and needs, and personality traits. The second consists of worker characteristics that are modifiable through experience, education, and training. These include knowledge and skills some of which apply to a wide range of jobs and others more specific to a particular occupation. The reader should be somewhat familiar with these two categories of constructs from the discussion in the work analysis chapter. In that chapter there was a discussion of the knowledge, skills, abilities, and other characteristics (KSAOs) contained in the content model of the O\*NET (see <http://www.onetcenter.org/content.html>).

## Methods used in assessing applicants

The methods used in generating predictor scores differ on three dimensions: the source of the data, the degree of structure, and the extent to which maximal or typical performance is measured.

### Source: objective testing, self-report, and subjective judgments.

Constructs assessed in selection are measured using objective testing, self-reports of the applicant, and subjective judgments of an observer. In objective testing the applicant is tested using procedures that are relatively free of human judgment. The measure of the construct is a score on how well the applicant performed. For this reason, objective testing is often called performance testing. An example is physical ability testing where an applicant's strength is tested with an isometric task or in cognitive ability testing where an applicant is given analogies and puzzles to solve in the attempt to measure intelligence. In self-reports applicants are asked to describe themselves on items relevant to the constructs measured. They describe their own personality, their values and needs, and their occupational interests. They also report on their past work experiences, skills, and knowledge. In using observational measures, someone is asked to describe the applicant. Observers describe the applicant's performance of a specific task during the selection process or provide retrospective accounts of the applicant's past behavior. The most common example is an interviewer who asks an applicant questions and then judges that applicant on the basis of the answers.

### Structure of selection methods.

Selection tools vary on their reliability and validity and the degree to which they are structured seems to be an important determinant of these differences. There are two components of structure. First, there is the question of whether the constructs measured by the tool are *job*-relevant. Structured techniques are based on job analyses that identify the critical KSAOs and are designed to those KSAOs. The second component is standardization. A structured selection tool is one that is constructed so that it is the same across administrations and the people tested. Paper and pencil aptitude tests are generally highly standardized in that in each administration people are presented with the same items, in the same order, and are asked to respond in the same manner. Many typical interviews are unstructured in that different interviewers ask different questions of different applicants. A lack of structure reduces the reliability of the measure and reduces how well it can predict future success on the job.

A structured selection tool also allows norming of the tool. In developing a selection tool, carefully controlled conditions are used with a carefully selected sample of people (a developmental sample). How the people in this sample performed on the test is the basis for interpreting the scores when a test is applied to other people. The distribution of scores in the developmental sample, or test norms, constitutes the frame of reference, much as a grade on an American history test is set by the curve established in a previous class. For example, scoring in the top 10% of a class (distribution) might earn an A even though 30% of the questions were missed.

Pursuing this example, it is apparent why it is important that the norms for a test are based on a class very similar to the one for which it is used. Imagine the reactions of students in a class comprised largely of people who had never been exposed to the material if the norms were based on a previous class that consisted of honors history majors who had already studied the material. It could be expected that the students would question the fairness of these norms. Many standardized tests specify norms for the various populations represented in their developmental sample (e.g., women and men, ethnic groups, age groups, the general U.S. population). The employers must decide for themselves how appropriate the norms are for the applicant pool. Some tests, like the ones taken in most courses, are not standardized, but are home grown. Usually the instructor's emphasis is on ensuring adequate representation of the material for which students are responsible, an implicit content validity orientation. The same is true of many tests that employers use to evaluate learning or achievement. What matters most is coverage, irrespective of who is taking the test. For example, a pilot who does not know emergency procedures is a hazard no matter how his overall flying performance compares with other trainees.

#### Maximal vs typical performance tests.

Another distinction is between typical performance and maximum performance. One can use this to distinguish among predictors as well among criterion measures (Barnes & Morgeson, 2007). First consider typical and maximum criterion measures. Taking the sum or average of an employee's performances on the job over time reflects how that person typically performs and appears to reflect motivation more than ability to perform. For instance, on a typical day a runner clocks an eight-minute mile, but when put to the test this same runner can do a five-minute mile. How fast the athlete runs on a typical day is typical performance, whereas how fast he can run when he runs his fastest is maximal performance. When measuring the criterion for purposes of validating a test for use in selection, it is typical that an aggregate (i.e., the sum or average) is formed from the performances observed over time and that aggregate is used as the criterion of success on the job. Those whose performance is measured show variability with some showing wide swings from low to high and others showing much more consistent levels of performance over time. Consequently, important information is lost in aggregating performances and much is learned about employee performance by examining how the individual employee varies over time in his or her performance (i.e., intra-individual variability of performance). In short, one needs to distinguish the typical performance from what the person is capable of doing.

One can also distinguish among predictors on whether they are maximum or typical measures. Some measures appear to predict maximum performances better than typical performances (e.g., ability tests), whereas other measures appear to predict typical performances better than maximum performances (e.g., personality tests). Maximal performance tests measure how well people can and have learned material, how well they recall information, and/or how well they can use information to solve problems or perform tasks. Cognitive ability tests, physical ability tests, knowledge or achievement tests, and work samples are considered measures of maximal performance. This is in contrast with measures of typical performance, which tap what a person typically does rather than how well he or she is capable of performing. Tests of personality, interests, needs, and values are examples. One caveat is that maximal performance tests only tap the maximum a person can do to the extent that the person is motivated to take the test. If they

are not motivated to take the test, then it will fall short of being a valid maximal test. Also, typical performance tests are only valid if the test taker is honest in reporting or demonstrating what they typically have done or will do. Still, if test takers take seriously the testing, typical performance tests (e.g., personality tests) should do better in predicting typical performance on the job (i.e., what the employee will do) whereas maximal performance tests (e.g., cognitive ability tests) should do better in predicting maximal performance on the job (i.e., what the employee can do). This is a hypothesis that researchers have yet to fully test, however, and employers should not adopt this as a universal rule.

Points to ponder:

1. Distinguish among predictors, measures, and constructs in employee selection. For what predictors do researchers agree the most with regard to the constructs that are measured? For what predictors is there disagreement?
2. Describe the three bases for distinguishing among measures in terms of source, structure, and type of performance. Provide examples of selection instruments representing different profiles on these three attributes of measures.

### Predictors Based on Stable Worker Traits

Some predictors used in selection are based on assessments of stable traits. The O\*NET uses the term "worker characteristics" to refer to worker attributes that are enduring and trait-like and include abilities, interests, work styles, and work values and needs. Rather than use O\*NET terminology, work styles are referred to here as personality traits, consistent with psychological research and theory. For the most part, these predictors do seem to reflect reasonably well the constructs that they are intended to assess. In other words, the construct validity of the ability, interests, personality, and value/need tests used in selection is relatively well established.

### Worker abilities

The O\*NET defines worker characteristics as the enduring attributes of the individual that influence performance and borrows heavily in the content model from the Fleishman & Quaintance (1984) Abilities Requirement Scales. In the work analysis chapter, we discussed the taxonomy of abilities that provides the conceptual basis for this scale and the readers may want to review this material to refresh their memory on the abilities included in this scale. The O\*NET distinguishes among cognitive, psychomotor, physical, and sensory abilities. In this chapter the focus is on specific and general cognitive abilities and physical abilities. The O\*NET provides a set of scales that job analysts can use in estimating the extent to which each of 52 abilities is required in a job ([http://www.onetcenter.org/dl\\_files/MS\\_Word/Abilities.pdf](http://www.onetcenter.org/dl_files/MS_Word/Abilities.pdf)). For each ability there is a behaviorally anchored rating scale that depicts what a person with a high and a low level of the ability could be expected to do.

### Specific cognitive abilities.

The cognitive category includes seven primary cognitive abilities originally identified through factor analyses of ability tests by Thurstone (1938). These seven primary cognitive abilities are listed and defined below along with examples of items used to measure each one.

1. Verbal comprehension (verbal): This specific ability reflects the capacity to define and relate words to one another as well as the ability to read written material and interpret what is read.

Examples items:

a. Synonyms: Which one of the following words means most nearly the same as effusive?

1. evasive
2. affluent
3. gushing
4. realistic
5. lethargic

b. Missing word questions that ask the person to complete the sentence in the way that makes sense:

In building the window the carpenter used a level to make sure that the sides of the window were \_\_\_\_\_.

1. straight
2. flat
3. horizontal
4. parallel
5. aligned

c. Related word questions:

Which of these is the missing word in kick, \_\_\_\_\_, walk

1. throw
2. toes
3. shin
4. feet
5. hand

d. Antonyms:

Which of the two of these words are opposite in meaning?

1. lose
2. winner
3. victor
4. loser
5. vanquish



f. Analogies:

Sadness is to happiness as defeat is to \_\_\_\_\_

1. joy
2. victory
3. tears
4. victor

2. Word fluency (word generation): the capacity to generate words.

Example item:

Using the letters in the word Minneapolis, write as many four letter words as you can in the next two minutes.

Anagrams: unscramble the following letters to form a word:

1. MTOIGRNIA
2. ETRONIVNMNE
3. PERCSOICMO
4. EMEERTRUAPT

3. Number aptitude (quantitative ability): the ability to make simple arithmetic calculations quickly and accurately.

Example item:

Carry out the following calculations:

$$345 + 722$$

$$8732 - 4843$$

$$422 \times 32$$

$$3630 \div 5$$

4. Inductive reasoning (reasoning): the capacity to derive or identify a rule or principle and apply it in the solution of problems.

Example item:

What number should come next in the sequence of the following five numbers?

1 5 2 4 3

1. 7
2. 1
3. 2
4. 4
5. 3

5. Memory: the capacity to commit material to memory and then accurately recall this information

Example items: Test presents a list of paired letters and symbols. The examinee is given a brief period to memorize the pairs, after which he or she is presented the letters and asked to write the correct symbol for each letter.

A \*

B \$

C %

D +

E ?

F @

G :

H ^

6. Spatial ability (spatial ability): the ability to visualize the relations among geometric figures and rotate these figures mentally.

Example items:

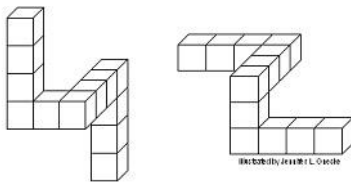


Figure 1: Based on Shepard & Metzler's 'Mental Rotation Task'

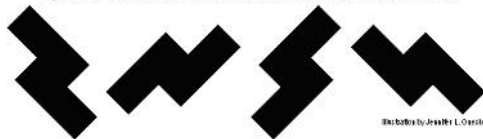
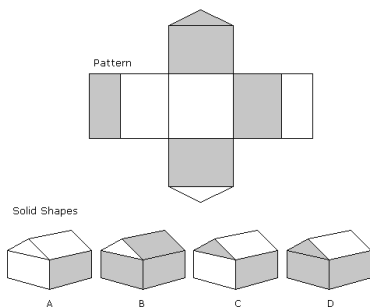


Figure 2: Mental Rotation Task Based on Canonical Orientations

[https://en.wikipedia.org/wiki/File:MR\\_TMR.jpg](https://en.wikipedia.org/wiki/File:MR_TMR.jpg)



Descriptions of the Minnesota Paper Form Board Test

<http://www.jdentaled.org/content/65/9/874.full.pdf>

<http://repository.lib.ncsu.edu/ir/bitstream/1840.16/4379/1/etd.pdf>

7. Perceptual speed (attentiveness): the ability to quickly and accurately perceive visual details.

Example items:

Make a check mark in front of each pair below in which the numbers are identical

1. 367773 \_\_\_\_\_ 367713
2. 471352 \_\_\_\_\_ 471352
3. 581688 \_\_\_\_\_ 581688
4. 324579 \_\_\_\_\_ 334579
5. 875989 \_\_\_\_\_ 876898

General cognitive ability (also called general intelligence, general mental ability).

Almost a hundred years of research has shown that underlying the specific mental aptitudes is a factor of general cognitive ability (also called general intelligence, IQ, or general mental ability). This general ability factor is often referred to as “g”. Higher scores on “g” reflect a capacity for acquiring and using knowledge and the ability to learn. Specific abilities are important to assess, but specific abilities frequently contribute only modestly to prediction beyond what is obtained with general cognitive ability in the prediction of training (Brown, Le & Schmidt, 2006) and performance (Ree, Earles & Teachout, 1994). General cognitive ability is considered by many psychologists to be the most important of all the KSAOs in the selection of employees (Gottfredson, 1997; Schmidt & Hunter, 1981). Although it is a better predictor of performance in complex jobs than simple jobs and of job performance than training success, general cognitive ability is predictive of future success on virtually all jobs, from the simplest to the most complex, and for a wide variety of learning and performance outcomes. From a predictive standpoint, intelligence tests are among the most valid tools employers can use in employee selection. Table 15.1 provides a summary of some of the meta-analyses of the criterion-related validities for mental ability in the prediction of job performance

Meta-analysis	k	N	$r_{uc}$	$r_c$
Schmitt et al (1984): U. S.	25	3,597	.22*	-----
Hunter & Hunter (1984): U. S.	425	32,124	----	.56
Salgado & Anderson (2002): Spain	9	1,239	.36*	.61
Salgado & Anderson (2002):UK	45	7283	.18*	.41
Salgado et al (2003a): Europe	93	9,554	.29*	.62
Bertua et al (2005): studies in UK	22	2,469	.22*	.48
Hülsheger, Maier, & Stumpp (2007): Germany	9	746	.33*	.53
Lang et al (2010): Germany	----	2,015	----	.44

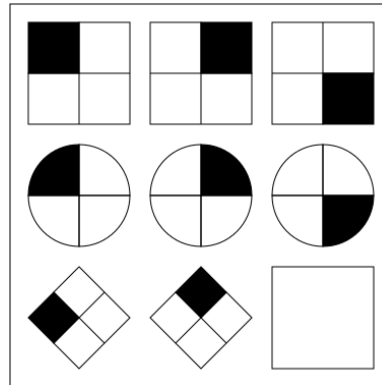
K = number of correlations; N = number of participants;  $r_{uc}$  = sample size weighted mean uncorrected validities;  $r_c$  = corrected validities; \* = confidence interval for correlation excludes zero.

Table 15.1: Meta analyses of Validities of General Mental Ability in Predicting Job Performance

The items contained in tests of specific ability and knowledge are all positively related to general cognitive ability, but some types of items on these tests have much higher correlations. The Ravens Progressive Matrices test is a nonverbal test that is considered among the purest

indicators of “g”. In the example below, the respondent is to choose that figure that belongs in the blank square and represents the correct progression in the matrices in the box.

Progressive matrices:



[https://upload.wikimedia.org/wikipedia/commons/e/ec/Raven\\_Matrix.svg](https://upload.wikimedia.org/wikipedia/commons/e/ec/Raven_Matrix.svg)

Although the track record for tests of general cognitive ability as a predictor of job success is impressive, they also are among the most vehemently criticized. Not everyone agrees that all employers need is general cognitive ability and have pointed to the importance of retain special abilities in the mix of predictors (Schneider & Newman, 2015; Ziegler, Dietl, Danay, Vogel & Bühner, 2011). Also, intelligence testing is at the heart of a host of major social controversies, including the civil rights movement, fair employment practices, and our national education policy. Even the debate over minimum admissions standards for college athletes is an intelligence testing issue. From a technical standpoint, experts continue to argue over the appropriate content and interpretation of such tests (Murphy & Davidshofer, 2005).

\*Controversy surrounding the construct of cognitive ability.

Although there is much consensus among researchers on the structure of cognitive ability, experts continue to quibble on the precise definition of the intelligence construct. Some see it as an aggregate of all the specific aptitudes; others see it as a superordinate “g” factor (meaning general intelligence factor) factor that governs the individual's intellectual prowess; still others see it somewhere in between: broader than specific aptitudes but comprising several somewhat independent components (e.g., verbal, quantitative, spatial capabilities). The third position is gaining support but the debate continues.

Among the more prominent current theories is one that distinguishes reasoning ability (fluid intelligence) from the ability to store knowledge (crystallized intelligence) (Cattell, 1963). Fluid intelligence is measured with items requiring the person to problem solve, use critical thinking, and use deductive and inductive reasoning. For instance, verbal analogies and mathematical problems are examples of items measuring fluid intelligence. By contrast, crystallized intelligence is measured with items requiring retention of information. Factual questions about history, literature, and science are examples of items measuring crystalized intelligence. Interestingly, fluid intelligence seems to drop off as people get older, whereas crystallized intelligence is more resistant to aging (Horn, 1985). Modern theories of human cognition provide

a whole new perspective on the intelligence construct and how best to measure it (Sternberg, 1977). For example, individuals differ greatly in their ability to hold items in working (short-term) memory as well as to manipulate those items quickly. Since both of these traits are related to how well people learn, they are obvious candidates for intelligence testing (Kyllonen, 1991).

So long as there is disagreement over the intelligence construct, the construct validity of any intelligence test is open to challenge. After all, the critic might ask, if uncertainty remains as to what intelligence is, how can an employer trust any tool that purports to measure it? While there is some merit to this criticism in a narrow technical sense, it is more than offset by the massive evidence of convergence among different intelligence test results. As discussed in the chapter on research methods, correlation or agreement among different measures of the same thing (temperature, intelligence, and mechanical aptitude) is a principal way of showing that a construct exists, and of indexing its construct validity. Thus, even though a detailed understanding of the nature of intelligence is still evolving, any of the more commonly used tests gives a good account of a person's overall learning ability. Psychologists know more about intelligence than just about any psychological construct, and the tests used to measure it are among the best measures available, both in terms of both construct and criterion-related validity.

\*The controversy over the fairness of cognitive ability testing.

The other main criticism of intelligence testing, the social values and fairness argument, is the more emotionally charged and difficult to resolve. There are large, stable differences between the average scores for whites and certain minority groups on intelligence tests, favoring the former group by as many as 15 IQ points or one standard deviation (Murphy & Davidshofer, 2005). Thus, when used to select people for jobs, academic admission, or any other socially valued opportunity, these tests tend to have adverse impact against protected groups. Efforts to produce culturally fair tests, that is, to eliminate items that would favor a particular ethnic background, have if anything increased rather than reduced the discrepancy in average scores (Jensen, 1980). The debate centers on what these differences mean and whether it is fair to use them in selection. The most inflammatory part of the argument focuses on whether there is a genetic component involved. Although the author of this text would never support banning research on genetic differences in the interest of freedom of inquiry, he has come to the conclusion, based on the existent body of research, that focusing on ethnic differences is a waste of time and journal space and potentially injurious to some groups in our society. Although the large and stable differences on ability test scores are troublesome, they do not justify discrimination in selection against all members of the groups having the lower scores. As is the case with most individual differences there is a distribution of scores and much overlap in the distribution of scores of whites and blacks and other majority groups. There are many black applicants who score higher than white applicants and concluding that blacks are lower than whites represents fallacious reasoning in the form of stereotyping. Such a conclusion also is of doubtful construct validity. Race itself is a social construction having a vague biological basis (Smedley & Smedley, 2005). Moreover, scores on general intelligence tests have risen over the last century, a trend known as the Flynn effect (Pietschnig & Voracek, 2015; Trahan, Stuebing, Fletcher, & Hiscok, 2014). Whether these rising scores will lead to smaller ethnic group differences on cognitive ability tests is arguable. Nonetheless, it seems reasonable to argue that as minority ethnic groups assimilate to majority cultures and their educational and income levels rise group differences on mental ability

test scores also decline.

Any reasonable person would agree that it is grossly unfair to screen minority candidates out using a test that is valid for the majority group but invalid for the minority group. Are cognitive ability tests less valid in the prediction of criteria for minority groups than for whites? At one time it was suspected that cognitive ability tests were differentially biased against minorities (Kirkpatrick, Ewen, Barrett, & Katzell, 1968), but based on subsequent analyses of the validities found for various ethnic groups, the conclusion was reached in the 1980s that differences in validity were attributable to statistical artifacts (Boehm, 1977; Schmidt & Hunter, 1981). The arguments seem to have come full circle in recent years with findings from meta-analyses of very large samples showing that there are indeed differences in validity among ethnic groups (Berry, Clark & McClure, 2011). The investigators found that cognitive ability tests were lower on criterion-related validity for black and Hispanics than for whites. The differences in validity between whites and the two ethnic groups appear to have shrunk from the 1970s to the 2000s but are still substantial. These findings call into question the widely accepted tenet among many I/O psychologists that cognitive ability tests are as valid for minorities as for whites. The reader should note that the jury is still out on this issue. There is a continuing debate over whether the differential validities are attributable to differences in restriction in range on cognitive ability test scores (Berry & Zhao, 2015; Berry, Cullen & Meyer, 2014; Roth, Le, Oh, Van Iddekinge, Buster, Robbins, & Campion, 2014).

\*The author's take on the issues.

Cognitive ability measures are valuable selection tools that employers should seriously consider using in selection decisions. They are not biased in the sense that the creators of the tests have intentionally constructed them to exclude specific groups. Nevertheless, there are serious problems that continue to plague their use and need the attention of those using them. An overemphasis on cognitive ability in selection decisions will have the effect of hiring fewer minorities, and employers must avoid and correct for this adverse impact. Another problem is associated with the norms used in interpreting test scores. A sample that is diverse in the socioeconomic and ethnic characteristics of test takers is much preferred to the predominately white, urban samples that are so often used in developing intelligence tests. All test takers should take intelligence tests under exactly the same conditions to avoid differences in test administration that could lower the scores of minorities. Employers and educators should ensure that all applicants have equal opportunities for preparing for employment tests and they should provide to applicants a prior orientation to the test and a chance to practice items characteristic of the tests. In general, white middle class test takers are more likely to afford or have internet access to expensive test preparation courses. This author also recommends the use banding in the interpretation of test scores as a potential means of dealing with adverse impact. As discussed in the last chapter, banding of scores recognizes the error of measurement that always exist to some degree in any predictor measure and is useful in attempts to hire a diverse, yet qualified workforce. Where the validation research justifies the use of a compensatory approach, an employer could allow the applicant to compensate for low scores on cognitive ability scores with higher scores on other predictor measures. In summary, there are numerous ways that an employer can avoid and eliminate biases to ensure that cognitive ability tests are not used in ways that unfairly discriminate against minority applicants.

In the end, the approach to making the use of cognitive ability tests fairer depends on one's values and particular idea of fairness. Cognitive ability tests present the employer with a challenge but there are creative ways of dealing with it other than blaming the test. Cognitive ability tests are the best of our predictors. Employers should not "throw the baby out with the wash" while trying to reduce adverse impact against minorities and other protected groups.

Points to ponder:

1. Describe each of the specific mental abilities identified by Thurstone and provide examples of how each is assessed in mental ability tests.
2. What is "g"? Describe the research evidence that supports measuring and using "g" in the selection of employees.
3. Distinguish between fluid intelligence and crystallized intelligence. What types of measures appear to reflect each?
4. How would you assess the criterion related validities found for general intelligence? What are potential explanations of these validities?
5. Discuss the practical and moral dilemmas that exist when using mental ability tests to select employees.
6. For each of the 52 abilities listed in the O\*NET use the scales provided to rate your level of ability ([http://www.onetcenter.org/dl\\_files/MS\\_Word/Abilities.pdf](http://www.onetcenter.org/dl_files/MS_Word/Abilities.pdf)).

#### Physical and psychomotor abilities.

Physical ability tests are commonly used for selection into such jobs as firefighter, policeperson, construction worker, steelworker, and the like, where there are high physical demands. Take, for example, the occupation of mechanical insulation workers, as described in O\*NET.

The tasks listed for this occupation are:

- Measure and cut insulation for covering surfaces, using tape measures, handsaws, knives, and scissors.
- Fit insulation around obstructions, and shape insulating materials and protective coverings as required.
- Determine the amounts and types of insulation needed, and methods of installation, based on factors such as location, surface shape, and equipment use.
- Install sheet metal around insulated pipes with screws in order to protect the insulation from weather conditions or physical damage.
- Apply, remove, and repair insulation on industrial equipment, pipes, ductwork, or other mechanical systems such as heat exchangers, tanks, and vessels, to help control noise and maintain temperatures.
- Select appropriate insulation such as fiberglass, Styrofoam, or cork, based on the heat retaining or excluding characteristics of the material.
- Read blueprints and specifications to determine job requirements.
- Cover, seal, or finish insulated surfaces or access holes with plastic covers, canvas strips, sealants, tape, cement or asphalt mastic.

- Prepare surfaces for insulation application by brushing or spreading on adhesives, cement, or asphalt, or by attaching metal pins to surfaces.
- Remove or seal off old asbestos insulation, following safety procedures.

Among the most important abilities listed in O\*NET for this occupation are physical abilities, including arm-hand Steadiness, multilimb coordination, and finger dexterity. Multilimb coordination (also called gross coordination), finger dexterity, and extent flexibility are physical abilities. Arm-hand steadiness is often labeled a psycho-motor ability and involves both physical and cognitive abilities.

There are three critical issues related to testing for physical ability. First, there is the issue of whether the physical ability tested is actually related to the job in the sense that it is required to perform the tasks in the job successfully. The second major issue is deciding what score will determine who passes and fails. Third, there is the issue of when and how often the physical ability is present. For some jobs, the use of a particular physical ability is relatively rare. For instance, it is only occasionally that a policeperson must run at full speed through traffic and then jump over fences in pursuit of a suspect, notwithstanding the depictions of police in many of the movies and TV shows. The question then becomes whether the performance of the tasks in which the physical ability is manifested are so crucial that a high score on a test measuring the ability is required.

There are two general types of physical ability tests. First, there are tests that are relatively abstract with relatively few of the surface characteristics of the position. Despite the lack of physical fidelity, these tests provide good measures of a variety of physical abilities. As an example, take a look at this method of measuring hand static strength with a dynamometer: <http://www.youtube.com/watch?v=frcNPiLnWRo>

The other general category of physical ability test is the simulation which tests physical ability in the context of a realistic sample of tasks in the position. An example is this simulation used in selection of firefighters: <http://www.youtube.com/watch?v=9BfqWGWzrfl>

As already discussed, cognitive ability tests tap into a general factor of general intelligence and then special aptitudes. Is there a general physical ability factor as well? The answer is no. Instead, at least nine specific physical abilities are identified in the research and are used in O\*NET: <http://www.onetonline.org/find/descriptor/browse/Abilities/1.A.3/>.

Dynamic Flexibility — The ability to quickly and repeatedly bend, stretch, twist, or reach out with your body, arms, and/or legs.

Dynamic Strength — The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.

Explosive Strength — The ability to use short bursts of muscle force to propel oneself (as in jumping or sprinting), or to throw an object.

Extent Flexibility — The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.

Gross Body Coordination — The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.



Gross Body Equilibrium — The ability to keep or regain your body balance or stay upright when in an unstable position.

Stamina — The ability to exert yourself physically over long periods of time without getting winded or out of breath.

Static Strength — The ability to exert maximum muscle force to lift, push, pull, or carry objects.

Trunk Strength — The ability to use your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing.

Interestingly, there is much less evidence for the criterion-related validity of physical ability tests relative to other predictors discussed in this chapter. They are typically used to screen applicants for physically demanding jobs and consist of either simulations of the job or specially designed tests such as physical agility or strength tests. It is important that the physical ability is at least relevant to the job. In many cases it may seem that commonsense is sufficient to verify the importance of a physical ability. After all, pilots with poor vision or firefighters who can't carry a 150-pound person are unlikely to succeed on the job. Or can they? Whether a physical ability is relevant and essential are only determined after rigorous work analysis. Employers should not base such decisions solely on commonsense but should conduct rigorous work analyses and assess the actual relation of physical abilities to job performance, just as they would any other worker characteristic.

Take, for example, a validation study that was conducted to determine the criterion-related validity of physical ability tests for line technicians, telephone installers, and other telephone crafts personnel (Reilly, Zedeck & Tenopir, 1979). Grip strength, reaction time, balance, and static strength were all positively associated with performance on work samples at levels that were statistically significant. In addition, scores on the physical ability tests predicted who stayed on the job for at least six months. Although males performed better than females on the physical ability tests, the tests were equally predictive of performance on pole climbing and ladder handling for both sexes. Accidents are an especially relevant criterion for validating physical ability tests used to select employees on hazardous and physically demanding jobs. In a study of physically strenuous warehouse jobs across three industries, the implementation of physical ability testing in the screening of applicants was found to be associated with a 41% reduction in injuries (Anderson & Briggs, 2008). In general, the research that exists tends to support the criterion-related validity of physical ability tests. In a meta-analysis involving twenty-two validities and a total sample of 3,103, an uncorrected validity of .32 in predicting performance (Schmitt, Gooding, Noe & Kirsch, 1984). One can presume that the jobs involved were physically demanding.

As in the case of cognitive ability, an important issue is whether the use of physical ability testing to select employees is fair. The Americans with Disability Act (ADA) and the Civil Rights Acts are pushing employers in the direction of validating many of the physical traits that they assumed were important bases for selection. Women tend to score lower than men on muscular strength and endurance, raising the distinct possibility that use of these tests will lead to adverse impact against women (Courtright, McCormick, Postlethwaite, Reeves & Mount, 2013). As the result of the ADA there is more of a burden on employers to demonstrate that physical abilities are not only relevant to the job but also constitute essential requirements (i.e., a level of physical ability is required to achieve a minimally acceptable level of performance). If the use of

the test adversely affects the hiring of physically disabled applicants, the employer must ensure that it is not possible to make reasonable accommodations in the design of tools, the workplace, or training to compensate for deficiencies.

Points to ponder:

1. List and define each of physical abilities identified in the research and listed in the O\*Net.
2. Describe some of the ways of measuring physical abilities?
3. Describe the criterion-related validity of physical abilities?
4. What are the fairness issues associated with using physical ability tests to select employees?

## Occupational interests

This construct reflects the preferences that employees have for various work environments. Regardless of whether one has the ability to perform the tasks in a job, one may or may not possess an interest in these tasks and enjoy doing them. For instance, accountants tend to find pleasure in attending to detail and engaging in quantitative tasks whereas carpenters find their job in hands-on work and more physical activities. The research has shown that patterns of interests crystallize in the late teens and remain stable throughout one's life. The O\*NET uses the Holland (1985) model of occupational interests and distinguishes among Realistic, Investigative, Artistic, Social, Enterprising, and Conventional interests (RIASEC; figure 15.1).

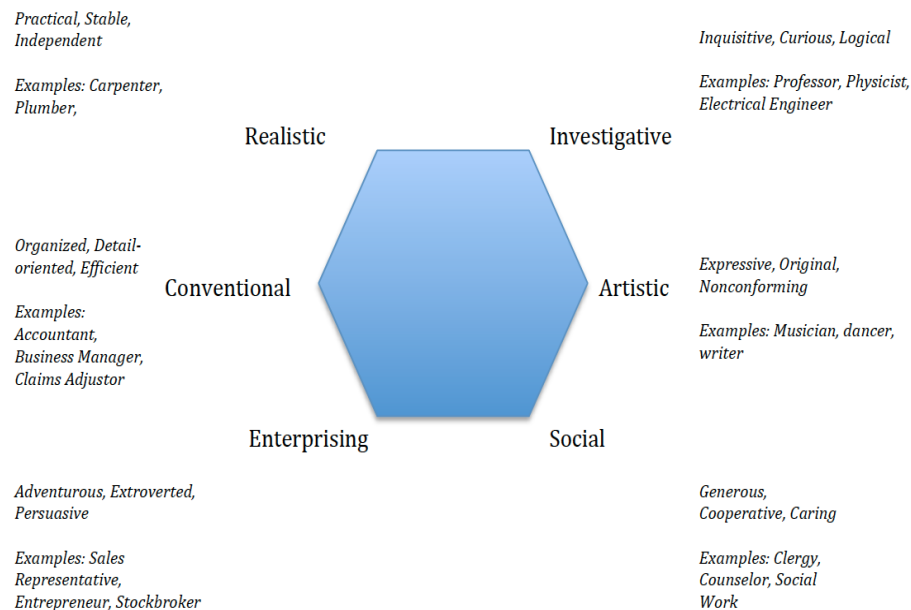


Figure 15.1: Holland's RIASEC Model of Vocational Interests

Those whose interests are compatible with the interests of others in an occupation tend to remain whereas those whose interests do not fit the interest pattern of others in the occupation tend to leave that occupation. For instance, persons whose dominant interests are in the realistic domain and who enter an occupation such as teaching or counseling have chosen an occupation where the interests of workers are farthest from realistic interests in the Holland scheme. The research

suggests that such a person will over time gravitate to an occupation where realistic interests are dominant or to an occupation where the interests are closer to the realistic domain (conventional and investigative). Interests are good predictors, of whether or not a person stays in an occupation. There is relatively little research on the relation of occupational interests to job performance, and the general opinion has been that occupational interests are not particularly useful in predicting job success (Barrick & Mount, 2005; Schmidt & Hunter, 1998). A study conducted with military personnel casts some doubt on this conclusion and provide evidence that occupational interests make an incremental contribution to the prediction of important criteria (Iddekinge, Putka, & Campbell, 2011).

## Work values

This set of dispositions is taken from the Lofquist and Dawis theory of work adjustment which states that people are most adjusted to their work and are both satisfied with the job and satisfactory in the performance of the work when their important values are met by the work environment (Dawis, Lofquist & Weiss, 1968; Dawis & Lofquist, 1984; see table 15.2).

Work Values and Sample Items Measuring Each Value	
Work Value	Work Value Statement On my ideal job, it is important that...
Ability utilization	I make use of my abilities.
Achievement	The work could give me a feeling of accomplishment
Activity	I could be busy all the time.
Advancement	The job would provide an opportunity for advancement.
Authority	I could give directions and instructions to others.
Autonomy	I could plan my work with little supervision.
Co-workers	My co-workers would be easy to get along with.
Company policies and practices	I would be treated fairly by the company.
Compensation	My pay would compare well with older workers.
Creativity	I could try out my own ideas.
Moral values	I would never be pressured to do things that go against my sense of right and wrong.
Independence	I could work alone.
Recognition	I could receive recognition for the work I do.
Responsibility	I could make decisions on my own.
Security	The job would provide for steady employment.
Social status	I would be looked up to by others in my company and community.
Supervision-human relations	I have supervisors who would back up their workers with management.
Supervision - technical	I would have supervisors who train their workers well.

Table 15.2: Lofquist and Dawes (2984) Work Values

For instance, if employees placed a great value on fulfilling needs for good companionship and friendly relationships and were in a cutthroat job in which they had to compete with co-workers, they would probably fall short on both their satisfaction with the job and the satisfactoriness of their performance. The same would occur if they valued security and comfortable working conditions and ended up in a job requiring them to work in the heat under constant threat of layoffs. The work values and needs used in the work of Lofquist and Dawis are summarized in table 15.2. In the O\*Net application of the theory of work adjustment, values are defined as groups of needs. Five values are identified: achievement (consisting of ability utilization and achievement), independence (consisting of creativity, responsibility, autonomy), recognition (consisting of advancement, authority, recognition, social status), relationships (consisting of co-workers, ethics, and social service), support (consisting of company policies, human relations supervision, and technical supervision), and work conditions (consisting of activity, compensation, independence, security, variety, and good working conditions). For more detail on the O\*Net approach to the measurement of work values go to:  
[http://www.onetcenter.org/dl\\_tools/WIP.pdf](http://www.onetcenter.org/dl_tools/WIP.pdf)

## Personality traits

Personality traits are stable patterns in an individual's typical behavior, affect, and thinking. Most personality tests attempt to measure what a person typically does and not what the person is capable of doing. As discussed in the previous chapter, the latter is a maximal performance test and is best measured with knowledge and ability tests or work samples. Personality tests are also signs not samples of the criteria that are predicted. A personality test is a sample to the extent that it includes contextualized items that are focused on specific aspects of the job (e.g., how would you feel if your boss criticized you for poor work, I like to attend the parties that we have at work), but most personality tests use items that are quite broad and cover all the domains of life, not just work.

## Alternative models of personality

So what personality traits should one measure if attempting to predict important job-related criteria? The logical place to begin when attempting describe personality traits is to look at the words people use in talking about personality. The lexical hypothesis states that personality traits are eventually encoded in language and the most important personality dimensions become encoded as single words (Allport & Odbert, 1936; Goldberg, 1990). The problem is that there are too many words to choose from. Indeed, Allport and Odbert (1936) identified over 4500 words in the English language that can be used to describe personality traits. Various theories of personality and personality tests have attempted to reduce the myriad of personality traits to a list of essential or most important traits. Henry Murray (1938) proposed that needs form the foundation of human personality and identified over 20 personality traits based on needs including achievement, affiliation, and dominance. Using factor analysis, Raymond Cattell identified 16 personality dimensions, and his 16Pf inventory was constructed to measure these traits (Cattell & Cattell, 1995). Another commonly used measure is the California Personality Inventory (CPI) which measures about 18 dimensions (Gough, 1995). Eysenck (1970), on the other hand, proposed three fundamental dimensions of personality based on his factor analytic research.

Although not based on research, the O\*NET presents the following list of personality traits that are considered important to performance of a work role. In the O\*NET these are referred to as work styles.

Achievement Orientation — Job requires personal goal setting, trying to succeed at those goals, and striving to demonstrate competence in one's work

- Achievement/Effort — Job requires establishing and maintaining personally challenging achievement goals and exerting effort toward mastering tasks.
- Persistence — Job requires persistence in the face of obstacles.
- Initiative — Job requires a willingness to take on responsibilities and challenges.

Social Influence — Job requires having an impact on others in the organization, and displaying energy and leadership

- Leadership — Job requires a willingness to lead, take charge, and offer opinions and direction.

Interpersonal Orientation — Job requires being pleasant, cooperative, sensitive to others, easy to get along with, and having a preference for associating with other organization members

- Cooperation — Job requires being pleasant with others on the job and displaying a good-natured, cooperative attitude.
- Concern for Others — Job requires being sensitive to others' needs and feelings and being understanding and helpful on the job.
- Social Orientation — Job requires preferring to work with others rather than alone, and being personally connected with others on the job.

Adjustment — Job requires maturity, poise, flexibility, and restraint to cope with pressure, stress, criticism, setbacks, personal and work-related problems, etc.

- Self-Control — Job requires maintaining composure, keeping emotions in check, controlling anger, and avoiding aggressive behavior, even in very difficult situations.
- Stress Tolerance — Job requires accepting criticism and dealing calmly and effectively with high stress situations.
- Adaptability/Flexibility — Job requires being open to change (positive or negative) and to considerable variety in the workplace.

Conscientiousness — Job requires dependability, commitment to doing the job correctly and carefully, and being trustworthy, accountable, and attentive to details

- Dependability — Job requires being reliable, responsible, and dependable, and fulfilling obligations.
- Attention to Detail — Job requires being careful about detail and thorough in completing work tasks.
- Integrity — Job requires being honest and ethical.
- Independence — Job requires developing one's own ways of doing things, guiding oneself with little or no supervision, and depending on oneself to get things done.

Practical Intelligence — Job requires generating useful ideas and thinking things through

logically

- Innovation — Job requires creativity and alternative thinking to develop new ideas for and answers to work-related problems.
- Analytical Thinking — Job requires analyzing information and using logic to address work-related issues and problems.

### The Big Five personality traits.

There are other personality models that have been proposed in addition to these, but fortunately a consensus has emerged over the last fifty years that there are five basic dimensions underlying descriptions of personality. This model is called the Big Five theory of personality (Goldberg, 1993; McCrae & Costa, 2003). It was first demonstrated in a factor analysis of trait descriptions in peer evaluations by Air Force personnel (Tupes & Christal, 1961). Subsequent research has provided evidence that the five factor structure generalizes across different participant samples (e.g., Digman, 1990) and cultures (e.g., McCrae & Costa, 1997). Also, scores on the Big Five traits appear to be stable over long periods of time (Costa & McCrae, 1988). The five personality dimensions and some of the descriptors associated with each factor are summarized below:

1. extraversion (vs introversion): friendly, assertive, active, excitement seeking, cheerful, outgoing, gregarious, fun-loving
2. agreeableness: trusting, moral, altruistic, modest, cooperative, flexible
3. conscientiousness: organized, disciplined, careful, achievement-striving, dutiful, feelings of competence or self-efficacy
4. neuroticism (vs emotional stability): anxious, insecure, depressed, self-conscious, vulnerable to stress, angry, immoderate
5. openness to experience: imaginative, curious, cultured, liberal, intelligent, adventurous,

Ozer and Benet-Martinez (2006) reviewed research showing that the Big Five personality dispositions are related to a variety of important outcomes including health, longevity, happiness, quality of relationships, and community involvement. There is also evidence that they predict job-related outcomes as will be discussed shortly.

There are criticisms of the Big Five Theory. Some have argued more than five dimensions are needed to really capture the complexity of personality or to predict important outcomes. One example is the HEXACO personality inventory which is based on evidence of a sixth personality factor in the form of honesty-humility (Lee & Ashton, 2004). There is also the issue of the independence of the big five dimensions. It is clear that the big five dimensions are related and are not entirely independent (i.e., they are not statistically orthogonal) (Block, 1995; 2010). Some have even presented evidence that there is a general factor of personality that personality forms a hierarchical structure (Veselka, Just, Jang, Johnson & Vernon, 2011). There is also some continuing debate over whether the questionnaires used to measure the Big Five traits are as generalizable across cultures as some of the advocates of the model claim (De Raad, 1998; Thalmayer & Saucier, 2014)

### Alternative types of personality tests.

There are four major types of personality tests. Self-report inventories are structured tests of personality that ask questions about present, past, or future behavior, feelings, perceptions, and beliefs. The responses are in the form true-false, agree-disagree, multiple-choice, or other formats that are quantifiable and that can generate a numerical score. Projective tests are not as straightforward but instead provide the person with an ambiguous stimulus that they are to interpret. An example is the Rorschach inkblot test that provides the persons tested with an inkblot and instructs them to tell what it is or means. Personality is supposedly projected onto the interpretation of the ambiguous stimulus. An employer also could measure personality in a structured or unstructured interview. Finally, an employer could measure personality by observing how an individual behaves in an assessment center, interview, or some other situation.

So what does the research show with regard to the criterion-related validity of personality tests? The trait that appears to do the best job in predicting job success is conscientiousness. The other personality dimensions are more specific to particular occupations, e.g., extraversion does seem to predict performance in sales occupations. Four major meta-analyses of the big five personality traits as predictors of job performance are summarized in table 15.3 (Barrick & Mount, 1991; Tett, Jackson & Rothstein, 1991; Hurtz & Donovan, 2000; Salgado, 1998). The Tett, Jackson and Rothstein (1991) meta-analysis differs from the other two meta-analyses in that it claims moderate levels of criterion-related validities for all of the big five traits. There is a major difference, however, between the Tett et al analysis and the other three. The former only included studies that stated a priori hypotheses for the relation of the personality trait to performance whereas the latter three included all studies. Ones, Mount, Barrick and Hunter (1994) criticized the focus on a priori studies and raised doubts about the accuracy of the validity estimates. Regardless of the controversies surrounding the validities of the big five personality traits, one conclusion seems to hold regardless of the particular study that is cited: the predictive validities found for personality traits are quite small.

Meta-analysis	Personality Trait	k	N	r <sub>uc</sub>	r <sub>c</sub>
Tett et al (1991) <sup>1</sup>					
	Openness	10	1,304	.18	.24
	Conscientiousness	7	450	.12	.16
	Extraversion	15	2,302	.10	.13
	Agreeableness	4	280	.22	.28
	Neuroticism	10	900	-.15*	-.19
	Int. Locus Control	7	719	.09	.12
Barrick & Mount (1991) <sup>2</sup>					
	Openness	55	9,454	-.02	-.03
	Conscientiousness	92	12,893	.13*	.23
	Extraversion	89	12,396	.06*	.10
	Agreeableness	80	11,526	.04	.06
	Neuroticism	87	11,635	-.04	.07
Hurtz & Donovan (2003) <sup>3</sup>					
	Openness	35	5,525	.04	.06
	Conscientiousness	45	8,083	.14*	.20
	Extraversion	39	6,453	.06	.09
	Agreeableness	40	6,447	.07	.11
	Neuroticism	37	5,671	-.09*	-.13
Salgado (1998): Europe					
	Openness	28	4,385	.04	.05
	Conscientiousness	35	4,985	.09*	.13
	Extraversion	45	6,098	.07	.09
	Agreeableness	37	5,174	.01	.01
	Neuroticism	49	6,383	-.10*	-.14

<sup>1</sup>Results were reported only for confirmatory studies in which an a priori theoretical basis or hypothesis was stated.

<sup>2</sup>Results based on any personality inventory scale that could be assigned to a Big 5 dimension.

<sup>3</sup>Results based on personality inventories specifically developed to measure Big 5 traits.

K = number of correlations; N = number of participants; r<sub>uc</sub> = sample size weighted mean uncorrected validities; r<sub>c</sub> = corrected validities; \* = confidence interval for correlation excludes zero.

Table 15.3: Validities of Personality Dimensions in Predicting Job Performance

#### Reasons for relatively low validities.

Even the strongest critic of personality testing would probably admit that personality is an important factor determining the extent that an employee succeeds in the performance of a work role. It is surprising then that such low validities are found for the criterion-related validities of personality tests. There are at least four possible reasons that personality tests are not strongly related to work behavior and performance. First, characteristics of the situation are viewed by some theorists as considerably more important than personality traits (Pervin, 1985). Thus, for example, persons who are high on the extraversion trait, but find themselves in a work setting in



which coworkers resent and criticize show-offs might not act very extroverted due to the situational forces. This is an example of a strong situation that shapes behavior through pressures on the person to behave in particular ways. Another example of a strong situation is one in which there are strict and clear rules prohibiting social interaction and talking on the job and punishments for those who violate the rule. Regardless of whether people are extraverted or introverted they would probably act in a quiet manner and avoid social interaction. Compare this with a weak situation in which there are no clear rules on social interaction and talking and no obvious punishments for being social. The demands on people are less and there is considerable ambiguity in how they should behave. Here, people are more likely to behave in a way that is consistent with their personality traits. The introverted people are more likely to act subdued, while the extraverts chatter away. Scores on an extraversion test do a better job of predicting the amount of social interaction and talking in the weak situations than in strong situations. An explanation for the low validities of personality tests in predicting job performance is that most work situations are strong situations due to the rules, procedures, and other aspects of the bureaucracy.

A second reason that personality traits are only weakly related to job criteria is that people differ on the extent to which they feel compelled to behave in consistency with their personality. One individual difference variable that appears to moderate the correlation of personality traits and behavior is self-monitoring. This is a personality variable that reflects the extent to which people attend to how others see them and their own behavior. High self-monitors are capable of changing their behavior to fit the situation and may even act in a manner that is opposite to what their personality traits would incline them to do. Low self-monitors are less likely to show concern for how others view them and act in accord with their personality traits, attitudes, and values. Support for the moderating effects of this variable comes from a study reporting that test scores on extraversion, openness and emotional stability are less predictive of supervisory ratings of interpersonal performance for high self-monitors than for low self-monitors (Barrick, Parks & Mount, 2005). Low self-monitors show more consistency possibly because they are incapable of shifting their behavior and possibly because they feel that it is a violation of personal integrity to do so. Another possibility is that low self-monitors lack the impression management skills of high self-monitors.

A third reason for the low validities concerns the motivation of the test taker in answering questions on a personality test and the possibility of faking and self-deception. Personality tests are typical performance tests in that they attempt to measure not what a person is capable of doing but what he or she would typically do. When taking a personality test, there are no right answers, and the strategy taken depends on the purpose of the test. If individuals feel that a personality test is intended to help them gain self-understanding, as would be the case in a career counseling session, they probably answer honestly in hope of making a good career choice. If the purpose is to assess the qualifications of applicants and determine whether or not to hire them, they are more likely to answer in a way that presents a socially desirable image. In some cases this leads to faking. For instance, applicants are probably not willing to admit to some of the crazy or borderline dishonest things they did as a teenager if applying for a job in a bank! They also might not have deep insight into their own behavior in answering the items on a personality test and may answer as they wish they were or what they think they are capable of becoming. In this case they are not lying as much as engaging in self-deception. The basic methodological

problem with personality tests used in selection is that most are self-report inventories; their items are transparent (easy to figure out), and they are thus subject to faking. Some try to overcome the problem by forcing test takers to choose between equally desirable or undesirable self-descriptions or by including special items that reflect their tendency to fake (so-called lie scales). Neither of these attempts to solve the problem is successful in eliminating faking. An alternative is to use projective tests in which test-takers interpret ambiguous (hence nontransparent) stimuli such as ink blots, open-ended sentences, or incomplete stories. Projective tests are hard to fake, but interpreting what responses say about the test-taker is problematic. At best, it requires a somewhat subjective analysis by a trained professional; at worst it is a dark art.

A fourth possible reason for the relatively low validities found for personality tests is that the wrong criteria are being used to validate them. Job performance is used as the primary criterion, but perhaps personality measures are better at predicting job satisfaction, commitment, and organizational citizenship. As discussed earlier, personality tests measure what a person typically does whereas an evaluation of job performance is a measure of maximum behavior or what the person is capable of doing. One could hypothesize that typical measures are more highly related to other typical measures, whereas maximum measures are more highly related to other maximum measures. Based on this reasoning, personality tests do a better job in forecasting job satisfaction, organizational commitment, and organizational citizenship. Measures of these criteria all reflect what a person typically does rather than what a person is capable of doing.

A fifth explanation for why some personality tests do not achieve higher validities is that are too broad in their measurement. This is an issue raised especially with regard to the Big Five personality traits. Some have argued that broad personality constructs such as reflected in the Big Five obscures important but more specific personality constructs and as a consequence leads to lower validities. For instance, conscientiousness encompasses integrity, perseverance, orderliness, and achievement motivation. Perhaps the use of single constructs encompassed within the global conscientiousness trait would achieve better results. There is evidence in favor of this argument (Hough, 1992; Schneider, Hough & Dunnette, 1996). However, other research suggests the opposite, i.e., that broad personality measures predict work-related criteria better than narrow traits (Ones & Viswesvaran, 1996; Salgado, Moscoso, Sanchez, Alonso, Choragwicka & Berges, 2015). Personality tests continue to emerge that focus on narrow domains. An example is GRIT which is the extent to which people focus on long-term goals and persist in efforts to achievement (Duckworth & Gross, 2014). The research has yet to determine the extent to which narrow personality traits can provide an increment in prediction over broad traits.

Still another reason is most of the validation research has used personality questionnaires in which the respondent indicates how they typically behave, think or feel across all situations. For instance, in measuring conscientiousness an item might ask “In general how well organized are you?” or “Across all situations how often do you follow the rules?”. In measuring extraversion, items might ask to agree or disagree with statements such as “I do all the talking in conversations with other people” or “I take charge of the situation”. To the extent that the impact of a personality trait depends on the situation, such broad, cross-situational questions may fail to capture the impact of the trait in a work situation. One possible solution is to contextualize the personality questionnaire so that the items are made work-specific. This may involve merely

adding a phrase such “at work” or “in my job” to the items in the personality questionnaire. In a meta-analysis of the validities obtained with contextualized and noncontextualized personality measures, Shaffer and Postlethwaite (2012) found higher criterion-related validities for contextualized personality questionnaires used in the workplace than for noncontextualized questionnaires. Higher uncorrected validities were found with contextualized measures for conscientiousness (.18 vs. .20), emotional stability (.08 vs .18), extraversion (.03 vs. .16), agreeableness (.12 vs. .15), and openness to experience (.07 vs .12). After correcting for artifacts the differences appeared even more pronounced. Overall the validities for noncontextualized measures ranged from .02 to .22 with a mean of .11 whereas the validities for contextualized measures ranged from .19 to .30 with a mean of .25. These findings suggest that future attempts to use personality questionnaires should strive to use item content that asks for self-reports specific to the work situation.

In summary, personality measures have not fared well in the practical business of predicting job performance (Guion, 1965). Typical validities rarely exceed .20, and when combined with other measures, personality scores seldom add more than a few percentage points to overall predictiveness. Also, some personality tests are seen as invasive and as violations of privacy. The research clearly shows that applicants react more negatively to personality tests than they do many of the other predictors. Nevertheless, one should not dismiss such measures too quickly. Even slight improvements in selection are often valuable if the cost of mistakes is high and large numbers of hiring decisions are being made. Moreover, personnel decision making is not the only reason to give personality tests. Provided the personality tests have good construct validity, they can provide useful information for competent professionals to use in counseling employees and for researchers to use in studying organizational behavior.

Points to ponder:

1. Describe Holland’s model of vocational interests.
2. Go to <http://www.mynextmove.org/explore/ip> in the O\*Net and take an interest inventory based on Holland’s model. Describe your vocational interests as profiled with this measure. Do you think this is an accurate depiction of your interests? Why or why not?
3. Vocational interests do not appear to predict job performance as well as they predict how long a person stays in a field of work. Why do you think this might be the case?
4. Describe each of the Big Five personality traits.
5. Go to <http://www.personal.psu.edu/~j5j/IPIP/> and take one of the scales measuring the Big Five personality traits. How did you do? Do you think these scores reflect your personality?
6. The author of this chapter (and some of his colleagues) believes that the criterion-related validities found in the prediction of performance are weak. Others would disagree with this assessment. What do you think? Review the results of the meta-analyses in table 15.3 and draw your own conclusions.
7. Discuss some of the special issues in measuring, personality, and values that create potential problems for their validity as predictors of job performance and other criteria?
8. What is a work value? What are the similarities and differences between needs, values, interests, and personality traits? How might personality affect values?

Knowledge and Skills Acquired Through Education and Experience

### The O\*NET description.

The O\*NET distinguishes in the content model worker requirements and worker experience. The former is used to refer to general skills and knowledge acquired and/or developed through experience and education. These attributes are relatively general attributes that are not specifically related to the tasks or activities of an occupation or specific job within that occupation. Rather they constitute the product of experience and education that could apply to a variety of jobs but are nonetheless more important to some occupations than to others.

1. Basic skills: In the O\*NET these are defined as capacities that are developed through education and experience that facilitate learning and the acquisition of knowledge. They include both content skills (reading comprehension, active listening, writing, speaking, mathematics, science) and process skills (critical thinking, active learning, learning strategies, and monitoring).

2. Cross-functional skills: these are capacities that are acquired through education and experience that could facilitate performance across jobs. These include social skills, problem solving skills, technical skills (other than those specific to technical activities in an occupation such as programming, troubleshooting), systems skills (e.g., judgment and decision making), and resource management skills (e.g. time management skills). The O\*NET now includes tools specifically designed for military veterans to assess how well some of the skills they have acquired in the military apply to other occupations.

3. Knowledge: In the O\*NET this is defined as an organized set of principles and facts that are applied across a broad domain and not specific to the task activities of a specific occupation. This includes knowledge of business and management, manufacturing and production, engineering and technology, mathematics and sciences, health services, education and training, arts and humanities, law and public safety, communications, and transportation.

4. Education: Again, this is a worker requirement is relatively broad and not necessarily specific to the occupation. It refers to the level of education and the area of education needed. The O\*NET uses the label worker experience requirements in the content model to refer to skills and knowledge acquired and/or developed through experience and education that are very specific to the occupation. This is similar to what the O\*NET refers to as worker requirements but is highly specific to the occupation. An example of a worker requirement for an occupation is the basic skill of reading comprehension that is acquired through general education. A comparable worker experience is prior experience in reading and comprehending technical manuals for a specific type of technology.

### Experience, education, and tenure.

A basis for selecting employees commonly used in organizations for many types of positions is past experience. At first glance, this is a "no-brainer." Surely, one might ask, "people with more experience perform better." Unfortunately, it isn't that simple. A lot of work experience as measured by the number of jobs held and the amount of time spent in those jobs may not mean that the person has had high quality experience. Indeed, as the saying goes, 10 years of

experience for some employees is 1-year experience multiplied by 10 and may not mean much. Also, for some jobs there is a limit to how much experience contributes to improved performance. In occupations with rapidly changing technology, a lot of experience on one outdated technology is possibly a negative, especially if there is negative transfer in which the past experience inhibits learning of the new technology. Certainly this is the case in many positions today. The problem with using experience as a predictor is that measurement of this construct is too often subjective, idiosyncratic, and unscientific. Probably the most usual way is through highly unstandardized perusals by interviewers and other hiring agents of the application material, resumes, interview answers, references, and biodata. A more structured approach are Training and Experience (T&E) ratings in which there are carefully constructed rating scales to guide those evaluating applicants.

So what has the research shown? Although experience is not among the best predictors, it does appear positively related to subsequent job performance (Quiñones, Ford, & Teachout, 1995; see table 15.4). The reader should keep in mind that the levels of validity probably reflect the use in the validation research of experience measures that are more structured than typically used in employee selection. The use of highly structured procedures such as found in training and experience evaluations is likely to produce much higher predictive validities than the subjective, holistic evaluations more typically used in employee selection.

Predictor	k	N	$r_{uc}$	$r_c$
Experience with performance (Quiñones et al, 1995)				
Overall experience	44	25,911	.22*	.27
Amount of experience	5	824	.36*	.43
Time of experience	35	24,457	.22*	.27
Type of experience	4	630	.19*	.21
Education with (Ng & Feldman, 2009)				
Task performance	85	47,125	.06	.09
Performance in training	16	4,348	-.01	-.03
Organizational Citizenship Behavior (OCB)	10	3,036	.11*	.17
Creativity	22	4,278	.17*	.25
Work-place aggression	9	1,801	-.05*	-.09
On the job substance abuse	10	11,515	-.17*	-.28
Absenteeism	23	70,003	-.11*	-.22
Age with (Ng & Feldman, 2008)				
Task performance	118	52,048	---	.02
Performance in training	16	9,228	---	-.04
Organizational Citizenship Behavior (OCB)	18	5,404	---	.06
Creativity	9	1,662	---	.01
Self-rated workplace aggression	15	3,641	---	-.08
Self-rated on the job substance abuse	14	5,182	---	-.07
Tardiness	7	1,763	---	-.26
Absenteeism	54	72,631	---	-.26
Tenure on job (Ng & Feldman, 2013)				
Task performance	54	17,365	---	.08
Organizational Citizenship Behavior (OCB)	8	18,33	---	.06
Creativity	8	1798	---	.05
Self-rated counterproductive work behavior	4	856	---	-.02
Absenteeism	2	370	---	.02
Accidents	2	939	---	-.04
Training/Experience Eval (McDaniel et al, 1988)				
All cases	132	12,048	.09	.17
Task based ratings	10	991	.08	.15
Behavioral consistency ratings	15	1,148	.25*	.45

K = number of correlations; N = number of participants;  $r_{uc}$  = sample size weighted mean of validities;  $r_c$  = corrected validities; \* = confidence interval for correlation excludes zero.

Table 15.4: Summary of Meta-Analyses with Education, Experience, and Tenure

#### Knowledge as a predictor.

Knowledge tests are also called achievement tests and measure a person's present level of proficiency in a content area acquired as the result of training, education, and experience. There are two types of knowledge tests. Subject-specific knowledge tests tap into specific knowledge

that is learned in the classroom. Examples are a final exam in history or the Scholastic Aptitude Test (SAT) for physics. Job knowledge tests consist of specific job-related questions about information important to performance such as tools and procedures. For example, a knowledge test used to select airplane pilots might contain questions about the principles of physics relevant to flying a plane as well as the specifics of how to fly a plane.

Both types of tests focus on the knowledge and skills that applicants have accumulated from previous experience and education and that they presumably can change with additional education and experience. This is in contrast to aptitude tests (e.g., general mental ability) that measure relatively stable traits related to how a person is likely to perform in the future. Aptitude tests typically contain items that are more abstract and less bound to specific content than knowledge tests. Consequently, criterion-related or construct validation strategies are often more appropriate in evaluating aptitude tests. Because knowledge tests attempt to provide a representative sample of content from a topical area, the typical approach to validating them is to use a content validation strategy. However, criterion-related and construct validation approaches are also appropriate approaches to validating achievement tests if the intent is to make predictions for future performance and the theory underlying the use of the tests is that performance reflects the capacity to learn.

A meta-analysis of the research examining the relation of knowledge and criterion measures reports corrected mean validities of .47 in the prediction of training success and .45 in the prediction of job performance (Dye, Reck & McDaniel, 1993). Similar results are reported in a later meta-analysis (Schmidt & Hunter, 1998). Although these validities are among the highest found for selection tools, there is controversy surrounding the use of job knowledge tests. First, the use of knowledge tests can lead to unfair discrimination in some instances. If a mechanic's job does not require prior knowledge and all applicants hired are trained on what is needed to perform the tasks of the job, hiring on the basis of a test of knowledge of mechanics would unfairly discriminate against women who typically do not have as much exposure to mechanics as men. If the job requires certain knowledge on the first day of work, then a knowledge test is appropriate and justifiable. A second issue is whether job knowledge tests add anything to the prediction of job or training performance beyond what is achieved with an aptitude test (also called incremental validity). There is some research showing that job knowledge and specific abilities add very little to the prediction of job performance beyond what is achieved with tests of general mental ability (Ree, Earles & Teachout, 1994; Ree, Carretta, & Teachout, 1995). Despite these findings, the use of both specific tests of knowledge and general mental ability tests provides a more legally justifiable basis for employee selection than relying on just general mental ability (Zierke, 2014). A third caveat concerns the distinguishability of aptitude and achievement. As discussed in the chapter on research methods, psychological constructs are often easier to theorize about than to actually measure. While achievement and aptitude constructs are easily distinguished in theory, in practice it is impossible to completely separate achievement from aptitude. It is very hard to measure math aptitude, for instance, without relying to some extent on experience with quantitative concepts. Likewise, experience with language is invariably confounded with verbal aptitude. Rather than imposing rigid distinctions, it is perhaps best to think of the distinction in terms of emphases rather than absolute differences. Aptitude tests emphasize abilities and potential more than achievement tests do.

## Work samples.

The most direct method of testing applicants is to give them actual job tasks to perform and see how they do. Earlier a distinction was made between predictor measures that are signs of future performance (such as cognitive and personality tests) and those that are samples of the work to be performed. Similar to cognitive tests, work samples are measures of maximum performance but unlike cognitive tests they are samples of the work rather than signs of future performance. As a consequence of their direct sampling of tasks in the job, the performance on work samples is much more dependent on knowledge and skills acquired through past experience and training than cognitive ability tests and most achievement tests. Work samples are often used in organizations, such as when secretarial applicants are told to type a letter, firefighter applicants are told to carry a ladder, an auto mechanic applicant is told to adjust some car brakes, or a computer programmer applicant is told to write a program. The typical, informal work sample often suffers from a lack of standardization. Take, for example, one applicant for a secretarial position who is asked to take dictation of a very difficult letter from a reader who mumbles, under noisy conditions, and another applicant who performs the same task under much more favorable test conditions. The lack of standardization in this instance renders any comparison of the two applicants meaningless. It is also crucial that work samples provide a representative sample of the tasks in the job (i.e., they lack content validity). Consider, for instance, if secretaries are hired on the basis of how well they take dictation, but this task is performed infrequently in the job. In this case, the work sample is unrepresentative of the important job tasks and does not provide a very sound basis for selection decisions.

Work samples are among the better predictors of job performance. One meta-analysis involving over 10,000 participants and 54 studies reports uncorrected criterion-related validity in the prediction of job success of .26 and corrected validities of .33 (Roth, Bobko & McFarland, 2005; see table 15.5). As attractive as work samples may seem as an alternative to other forms of testing applicants, there are at least three serious problems. One problem can occur if new hires are not expected to have a specific task skill but to develop the skill through training. In this case, the applicant with prior experience has an advantage over an inexperienced but highly capable applicant who could do the job well after training. A second problem, related to the first, is that a work sample can lead to unfair discrimination against minorities and women who lack the experience of white male applicants (e.g., women might not have the experience in working on cars) but with training could do just as well as white males. If one hired on the basis of a typing test but then taught all those hired to type, this gives unfair advantage to some groups. The potential for adverse impact on minority hiring from the use of work samples appears quite possible based on a meta-analysis showing that white applicants score substantially higher than black applicants on work samples (Roth, Bobko, McFarland, & Buster, 2008). This difference is especially pronounced when ratings of ability and knowledge are the focus of the evaluations of work sample performance. A third problem is that a good work sample is expensive to develop and maintain. Informal work samples developed on the fly are cheap, but it takes time and money to develop a fair and valid work sample and then update that work sample to take into account changes in tasks and technology.



Meta-analysis	k	N	$r_{uc}$	$r_c$
Roth et al, 2005	54	10,469	.26*	.33
Schmitt et al, 1984	18	3512	.38*	---
Asher & Sciarino, 1974				
Motor work samples	30		.62*	---
Verbal work samples	30		.45*	---
Hunter & Hunter, 1985			.54*	---

K = number of correlations; N = number of participants;  $r_{uc}$  = sample size weighted mean of validities;  $r_c$  = corrected validities; \* = confidence interval for correlation excludes zero.

Table 15.5: Summary of Validities Reported for Work Samples

Points to ponder:

1. Experience does positively relate to job performance but not at a level that one might expect. It is not one of the stronger predictors of job performance. Why do you think this is the case? How could one measure experience so that it is a better predictor?
2. Aptitude tests such as general mental ability tests are often distinguished from knowledge or achievement tests. In theory, what are the differences? In practice, why are they so difficult to separate?
3. Work samples seem to be a very good way of selecting employees and the criterion-related validities found for them are among the higher validities found in the research on selection. However, there are pitfalls to using work samples. Discuss some of the issues in this approach.

#### Predictors Where Uncertainty Surrounds the Constructs

For the predictors discussed so far the constructs that are assessed are relatively clear. This is not the case with the predictors reviewed in this section. Some of these predictors are shown in research to forecast success on the job (especially assessment centers, structured interviews, and biographical data). However, there is uncertainty about the underlying constructs that are measured and why the predictors perform as well as they do in terms of their criterion-related validity. In most cases it appears that the predictor reflects some combination of stable traits such as abilities, interests, personality, and values as well as characteristics acquired through experience and education.

#### Interviews

With the possible exception of unweighted application blanks, no other selection tool is used as frequently as the face-to-face interview. Not surprisingly, employers want to see and talk to the people they hire. Despite the widespread use of interviews, reliability and validity depends on whether a structured vs unstructured interview method is used. Structured interviews can achieve validities that rival those found for cognitive ability tests, but unstructured interviews are among the weakest selection tools in terms of their validities and reliabilities.

### Unstructured interviews.

Interviews, as they are typically done, are unstructured and open-ended. In an unstructured interview, interviewers can ask whatever questions they want, in whatever order they wish, and form a final, subjective judgment based on whatever factors they consider relevant. This author has talked to interviewers who firmly believe that the best applicant is one who can provide a firm handshake with palms that are free of sweat and that using this as a primary basis for evaluation of qualifications is appropriate. This author also has encountered interviewers who believe that the best applicant is one who "looks the part" and is physically attractive. When interviews are unstructured and allow these implicit theories to influence the gathering and evaluation of information, they can go terribly wrong. For a couple of funny videos of interview gone wild check out: <http://www.youtube.com/watch?v=UdHWL4vdDsE&feature=related>

Unstructured interviews are subject to many interviewer biases and distortions associated with the interaction between interviewer and interviewee (Dipboye & Macan, 1988; Dipboye, 1992; Dipboye & Gaugler, 1993). Here are some of the common problems.

Primacy effects refer to the fact that the first data on an applicant may shape final impressions to a greater degree than information gathered later in the process. An applicant has only one time to make a good first impression. If the individual picks his nose or does something else as negative in the first minutes of interaction of the interviewer, there is little hope of reversing the interviewer's negative impression. Contrast biases refer to the effect that other applicants will have on the interviewer's impressions. If an applicant interviews for a job and everyone else has many years of experience, high GPAs, and good looks (to add insult to injury), the applicant is likely to receive a lower evaluation than if the other applicants are average in qualifications and appearance. A third bias is similar-to-me effects in which interviewers evaluate applicants who are similar to them in their attitudes, background, values, etc. more favorably than those who are less similar. Finally, there are the biases that can enter into the evaluations as the result of leniency, strictness, or central tendency biases. These biases were discussed in the chapter on performance evaluation and apply as much to the unstructured interview and any other HRM tool that relies on human judgment as to performance ratings.

### Structured interviews (behavioral interview).

A structured interview reduces these biases by increasing the job-relatedness of the constructs measured, limiting access to information on the applicant prior to the interview, standardizing the information gathering process, and improving the rating scales and rating process. The use of behaviorally anchored scales and training of raters were discussed in the performance evaluation

chapter and also can be part of efforts to structure interviewer ratings of applicants. As a consequence of the structuring of the interview, structured interviews achieve much higher levels of validity than unstructured interviews (Wiesner & Cronshaw, 1988). The reader should note that structured interviews are also called behavioral interviews. For the purposes of the present discussion, this chapter considers these to be equivalent.

In structuring interviews, two types of questions are often used:

One type is a future oriented interview question in which the applicant is asked "what would you do if." Critical incidents job analysis is used to determine how good and not so good employees currently on the job perform. Questions are constructed that ask the applicant what they would do in situations described in the critical incidents. Specific ways of handling the situation are used to anchor the rating scale the interviewer uses in evaluating each applicant. Incidents of poor performances anchor the negative end of the scale and incidents of good performances anchor the positive end of the scale. Applicants who answer in ways that resemble how good employees behave obtain higher ratings in the interview than applicants who answer the questions in ways that resemble how poorer employees behave.

The other type of question is the past-oriented interview questions in which applicants are asked "what did you do when." The scoring of these questions are also often done using rating scales anchored with incidents of good and bad employees. The "what would you do if" seems most appropriate for applicants who have no previous work experience, whereas the "what did you do when" is most appropriate for experienced applicants.

Scale values are attached to answers by having incidents pre-rated on the extent to which an answer reflects a good or bad answer to the interviewer question. The scale value of the incident on the rating scale that best represents the applicant's answer to the interview is taken as the applicant's performance on that interview question. The approach to constructing a rating scale to evaluate answers to future oriented questions in which typical answers reflect different levels of performance is called typical answer scoring. An approach to constructing a rating scale to evaluate answers to past oriented questions in which the interviewer looks at whether key issues were mentioned in the answer is called key issues scoring.

Examples of future-focused questions:

1. Assume that a customer gets angry, yells at you, and accuses you not caring about her needs. You are approaching the end of your shift. What would you do?
2. Imagine that you have scheduled an important meeting with a potential client at 12:00 noon. It is now 10 am and you realize that you will not be finished until 12:30. It is important that the task is finished today. How would you handle the situation?
3. When you get up Monday morning, you find that your spouse or partner has a bad cold. You are concerned about her/him. You are to report for work at 9 am and it is now 7:30 am. What would you do?

Examples of past-focused questions:

1. Tell us about a time when you were helping someone such as a client or customer and that person became angry with you. What did you do and how did you deal with the problem?
2. Think back to a situation in which you were trying to juggle two tasks and realized that you could not finish one without neglecting the other. How did you handle the situation?
3. It is often difficult to balance one's personal life with work life. This is especially difficult when those close to you are having problems and need your attention. Think of a time when a loved one encountered difficulties and your work conflicted with giving them the attention they deserved. What did you do and how did you handle the conflict?

Typical answer interview scoring for the angry customer scenario:

5. Because I do not have the information about why the customer is upset. I would talk to the customer away from others in the situation to determine the source of his or her anger. Based on this discussion, I would do what I could to satisfy the customer.
4. I would try to calm the customer down and then would call my supervisor for advice.
3. I would provide an excuse for why the customer did not get what he or she wanted.
2. I would tell the customer to go away and come back later when he or she was calmer.
1. I would ignore the customer and walk away.

Key issues interview scoring.

In giving higher ratings, look for answers that include the following:

- Acknowledged the customer and showed concern.
- Recognized the need to avoid disturbing other customers by removing the angry customer from others.
- Recognized the need to calm the customer.
- Avoided confronting or arguing with the customer.
- Showed willingness to seek help from supervisor after trying to solve the problem on his or her own.

Two types of structured interviews are situational interviews and behavioral description interviews. The situational interview contains future oriented questions and is most appropriate for applicants with experience in the job. Behavioral description interviews contain "what did you do when questions" about general incidents not specific to the job and are appropriate to applicants without experience in the job. For instance, an interviewer might interview a candidate for an accountant job where it is very important that the new hire can master specific procedures and possesses specific knowledge. Here the interviewer could ask "what if questions" where she pose questions about potential problems or situations that could occur in an accountant's job (e.g., 'what if your accounts payable column was, blah, blah, blah). On the other hand, she might interview a candidate for a supervisor trainee position where it is not important that the new hire have past experience in a supervisor position. Moreover, the interviewer might interview fresh college graduates with no supervisory experience. Here she could ask "what did you do when" questions. If it is important that supervisor trainees have skills in managing their

time, but it is not important that they have worked as supervisors in the past, the interviewer could ask how they went about managing their time in their courses at college.

### Meta-analyses of interview validities.

Meta-analyses of interview validity show that higher validities are obtained in structured than in unstructured interviews, although the highest degree of structure doesn't appear to add that much over moderately structured interviews (Huffcutt & Arthur, 1994). As shown in table 15.6, the validity of the most highly structured interviews (level 4) is  $r = .57$  whereas the validity of the next most structured interview (level 3) is  $r = .56$ . Both of these and the level 2 interviews had much higher validity than the least structured, level 1 interviews ( $r = .20$ ). High structure interviews are not only more valid in predicting job performance than low structure interviews but interview ratings based on structured procedures are less biased against blacks and Hispanics (Huffcutt & Roth, 1998). The unstructured interviews sampled in this analysis are probably more structured than the typical unstructured interview. After all, it is impossible to compute a correlation between interviewer judgments and later performance if the evaluation of the applicant by the interviewer is missing. As a consequence, the validities obtained for unstructured interviews in this analysis are probably higher than those associated with the typical unstructured interview.

Meta-analysis		k	N	$r_{uc}$	$r_c$
Huffcutt & Arthur (1994)	All interviews	114	18,652	.22*	.37
	Level 1 Structure	15	7,308	.11*	.20
	Level 2 Structure	39	4,621	.20*	.35
	Level 3 Structure	27	4,358	.34*	.56
	Level 4 Structure	33	2,365	.34*	.57
McDaniel et al (1994)	All interviews	160	25,244	.20*	.26
	Unstructured interviews	39	9,330	.18*	.23
	Structured Interviews	89	11,801	.24*	.31

K = number of correlations; N = number of participants;  $r_{uc}$  = uncorrected validity coefficient;  $r_c$  = corrected validity coefficient;

\* = confidence interval for correlation excludes zero.

Table 15.6: Validity of Interviewer Ratings in Predicting Job Performance

Although the meta-analyses of interview validities have shown that interviewer judgments of applicants based on structured interview procedures achieve surprisingly high levels of validities, there are questions remaining that researchers have not yet fully addressed. One question is

whether structured interviews are incrementally valid (Dipboye, 1989). A structured interview can focus on any number of constructs and when there are good measures of these constructs available, the interview adds little to the prediction of criteria. For instance, an interviewer who focuses on evaluating cognitive ability is unlikely to increase the prediction of job success beyond the prediction achievable with a paper-and-pencil measure of ability. Another question concerns individual differences among interviewers. Although one might expect that a structured procedure minimizes the variations among individual interviewers in the predictive validity of their judgments, there is little research directly addressing this issue.

### Biographical information

This category includes demographic, work history, and other personal data. An employer could gather these data using application blanks, reference checks, resumes, and other familiar techniques. Because biographical information is usually collected and retained when evaluating applicants, a selection procedure based on this information is easily validated in many hiring situations. Structured biographical information is often quite valuable in selecting among applicants. Two types of structured biographical information are the Weighted Applicant Blank (WAB) and Biographical Inventory Blank (BIB).

#### Weighted application blank (WAB).

This is a way of structuring biographical data that takes information from the application blank and attaches weights to the various responses. In developing a WAB, an examination is made of how high performing and low performing employees respond to questions on the application blank when they first apply for work. The weight attached to a response increases the larger the differentiation between the high and low performing groups. For instance, assume that applicants are asked how many previous jobs they have held. Also assume that research has shown that there is a positive correlation between job performance and number of previous jobs, indicating that those having had more jobs in the past are the higher performing employees. Based on the data, a score of +3 could be attached to answers indicating that the applicant held 5 or more jobs, a +2 to 3 - 4 previous jobs, and a +1 to 1 - 2 previous jobs. Negative scores are also possible...such as a -1 to no previous jobs. The overall score on the application blank is the score attached to each response of the applicant across all items on the WAB.

#### Biographical inventory blank (BIB).

Another approach to structuring biographical data is the biographical inventory blank (BIB). In this case, the selection tool looks like a regular multiple choice test but the questions deal with past history of the applicants, their likes and dislikes, and a variety of other types of information. There are six steps taken in the development of a BIB:

1. Identify a job for which you will use the BIB in selecting employees.
2. Create a pool of potential biodata items or questions.
3. Choose a criterion that you are trying to predict with the BIB (e.g., job performance, turnover)
4. Administer the items to a sample of present employees.
5. Weight biodata item responses on the basis of how they distinguish between those who are high and low on the criteria.

6. Retest items using a second sample of employees.

Table 15.7 lists some of the types of items that are included in biographical inventories. BIBs and WABs vary on the attributes of the items and can overlap with other types of selection tools such as personality tests. Mael (1991) states that it is essential that BIBs should contain questions that are historical in that they ask about the applicant's personal history. To ask future-oriented or hypothetical questions is to stray into the measurement of personality traits. Mael (1991) further suggests using external, objective, first-hand, and verifiable items to minimize faking. It is also necessary in many cases to use noninvasive, controllable, and job-relevant items because of legal restrictions and concerns about the damaging effects on recruiting.

Biodata Item Attributes	Description	Example of item with the attribute	Example of item lacking this attribute
Historical	Actual events and experiences occurring in the past that potentially predict future behavior	How old were you when you got your first paying job?	What do you think will be the types of jobs you will hold in the future?
External	An overt behavior observable by others (as opposed to unexpressed thoughts, attitudes, or opinions).	Did you ever get fired from a job?	Do you often fear losing your job?
Objective	Response is based on recall of information (not subjective interpretations)	What was your class ranking?	Did you perform as well as others in your class?
Discrete Actions	Items deal with single, unique behaviors or simple counts of unique behaviors (not summaries of some behavior)	How many jobs have you held?	How much work experience do you have: a lot....none at all?
Verifiable	Response to item can be corroborated by an independent source.	What was your grade point average in college?	How hard did you study in college?
Controllable	Items dealing with actions that were chosen and under the control of the person.	How many jobs did you apply for in your last job search?	Was your father ever unemployed?
Equally accessible	Asks about experiences and skills in which all respondents would have an opportunity to participate.	Did you join any clubs when you were in college?	Did you belong to a fraternity (sorority) in college?
Noninvasive	Items should not ask questions that violate civil rights and privacy laws or that unduly intrude into the private life of the respondent	How many hours a week do you work?	Are you married and if yes, does your spouse have a job?
Visibly Job relevant	Items showing a clear and valid relationship to the job.	Did you work on your car as a teenager? (applicant for automechanic job)	Did you play with tinker toys when you were a child?

Table 15.7: Attributes of Biographical Items Potentially Used in BIBs and WABs.

In attaching weights to the responses to items in a BIB, an approach is taken that is identical to what is described for a WAB, i.e., a weight is attached that represents how well various responses perform in distinguishing different levels on the criterion. Take, for example, a question on a BIB in which the applicant is asked the highest level of education received (see table 15.8). Assume the responses are high school, bachelors, or masters. Also assume that the employer is interested in predicting who are the long term employees and those who leave within a year. Employees are chosen who are long term (e.g., stayed on the job more than five years) and short-term (e.g., quit before one year). The two tenure groups are then compared on how they responded to the question about their education. In the example below, 80% of the short tenure employees state that they only have a high school degree whereas 40% of the long tenure employees state that they only had a high school degree. Based on the differences in response, a -1 score is assigned to a response on the BIB that the highest degree of education is high school. Using a similar process, a +1 is assigned to a response of college and a 0 to a response of a masters (note that a 0 is attached because having a master's degree does not distinguish between the long term and short term groups).

<u>Answer to Question</u>	<u>Percentage</u>			
<u>About The Amount of</u>	<u>with Long</u>	<u>Percentage with</u>	<u>Difference in</u>	<u>Unit Weight</u>
<u>Education</u>	<u>Tenure</u>	<u>Short Tenure</u>	<u>Percentage</u>	<u>Assigned to Answer</u>
High School	40	80	-40	-1
Bachelor's	59	15	+44	+1
Masters	1	5	-4	0

Table 15.8: Assigning Weights to Answers in a Biographical Inventory

#### The empirical vs rational approach to constructing BIBs and WABs.

An important distinction is between the empirical vs. the rational approach to scoring BIBs and WABs. In creating a pool of items, one could brainstorm all sorts of items without any consideration of the requirements of the job. This is sometimes called the empirical approach. Another approach is to carefully analyze the job and then pose hypotheses for the KSAOs required in the job. The biodata items are then generated on the basis of the KSAOs. This is called the rational approach. A compromise is the hybrid approach which combines the rational and empirical approaches. One approach is to weight responses using an empirical approach and then review the weights in relation to theory. If weights do not fit theory, they are modified to make more theoretical sense or dropped from the biodata instrument. The rational and hybrid approaches are advocated by some I/O psychologists so as to provide a firmer basis for justifying construct validity (Mumford & Stokes, 1992) and increasing its defensibility in court (Sharf, 1994). However, research findings comparing the criterion-related validities of the three approaches tend to show that an empirical approach yields higher criterion-related validities (Cucina, Caputo, Thibodeaux & Maclane, 2012; Mitchell & Klimoski, 1982).

The criterion-related validities for biographical inventories found in meta-analyses reveal that biodata can add considerable value to the selection of employees. Although the validities



typically are not as high as mental ability tests or work samples, they are among the highest found in employee selection. The results of two meta-analyses are summarized in table 15.9.

Meta-analysis	Criterion	k	N	$r_{uc}$
Bliesener (1996)	Objective performance	19	3,582	.53*
	Performance ratings	16	14,025	.32*
	Tenure	39	47,045	.22*
	Creativity	19	4,117	.43*
	Training success	49	35,256	.36*
Schmitt et al (1984)	Performance rating	29	3998	.32*
	Turnover	28	28,862	.21*
	Achievement/grades	9	1,744	.23*
	Productivity	19	13,655	.20*
	Status change	6	8,008	.33*
	Salary	7	1,544	.53*

k = number of correlations; N = number of participants;  $r_{uc}$  = mean uncorrected validities weighted by sample size;  
 \* = confidence interval for correlation excludes zero.

Table 15.9: Validities of Biographical Data in Prediction of Various Criteria

#### Potential problems with biographical information.

The main weakness of biodata is that it is often difficult to tell why a biographical item is predictive (i.e., what construct it taps). This is especially true if a purely empirical approach is taken to developing the WAB or BIB rather than a rational approach. Biodata can be culturally biased. Questions about arrest record, parents' education, marital status, and number of brothers and sisters, for example, could lead unintentionally to adversely affecting the hiring of minorities. Another problem with biodata is that neither applicants nor employers particularly like the approach. The reactions to biodata are less favorable than many other selection techniques and can potentially hurt recruiting efforts. Finally, biodata can become outdated as the nature of work and the characteristics of workers change and as new laws and regulations emerge. Consequently, employers must reassess biodata instruments periodically.

Points to ponder:

1. Think back to a time in which you were interviewed for a position. How would you describe the interview in terms of what is discussed here?
2. What are the various biases that can enter into an unstructured interview that can negatively impact the criterion-related validity of interviewer judgments?

3. What are the various ways of structuring an interview to improve the criterion-related validity of interviewer judgments?
4. Describe the steps taken to assign weights to responses in a biographical information selection instrument?
5. What are future-oriented questions in an interview and when are they most appropriate to ask? What are past-oriented questions in an interview and when are they most appropriate to ask?
6. What are the types of items used in biographical information instruments for employee selection?
7. Although the criterion-related validities for instruments based on biographical information are among the stronger validities found in the research, they are disliked by applicants and employers. Why the resistance?
8. Compare the empirical and rational approaches to constructing biographical information instruments.

### Assessment centers

Assessment centers were used by the U. S. during World War II in the selection of spies and other covert agents by the Office of Strategic Services (the precursor to the CIA). In the post WWII years, assessment centers were adopted by some large corporations such as the old AT&T (American Telegraph and Telephone Corporation) and IBM. Assessment centers are eclectic in content (i.e., they often include tests as well as role plays and simulations). However, the distinguishing characteristic of this approach is the use of samples of work in the form of in-baskets, role plays, and simulations. Assessment centers fall somewhere in the middle on the sample vs sign and typical vs maximum dimensions.

#### What is an assessment center?

In most assessment centers, people are assessed in groups, partly on the basis of their individual performance on tasks and partly on how they interact with other members of the group. The assessment is carried out by a team of assessors trained in assessment center procedures. Some assessment centers are located within the organization and others are found at some physical site outside the organization. Although psychologists are occasionally involved in running the center, employees of the organization more frequently serve as assessors. Assessment centers are used to evaluate applicants for a wide variety of positions, but they are most often used to evaluate applicants for managerial and supervisory positions.

An assessment center could contain all of the selection instruments discussed here (biographical data, interviews, ability tests, personality inventories). Some instruments are unique to assessment centers, however, and sample important aspects of the work performed in the job. In one of these, the in-basket exercise, the people who are assessed respond to problem situations. In a managerial assessment center, the in-basket test simulates the memoranda, letters, and other written documents managers might expect to find on their desk and requires the candidate to respond in writing to the problems. Another common exercise is the leaderless group discussion. Here the people who are assessed are given a topic to discuss as a group. They are observed to see how each participant behaves in the discussion and who exerts leadership. Role plays are frequently used in which participants act out how they would deal with a particular scenario. For

instance, they might be given the role of supervisor and some basic information on the performance of a subordinate. A confederate or another participant acts out the role of subordinate as the participant attempts to conduct a performance appraisal/feedback session with that person. Case analyses involve giving a written description of a situation in which there is a problem. The participant prepares a written or spoken analysis of the problem and potential solutions. Cases are also frequently used as the topic for leaderless group discussions. Oral presentations involve giving the participant information on a problem or issue and then having the participant deliver a formal talk or pitch in which there is analysis of and proposed solution to the problem. Oral presentations are often combined with case analyses. On the basis of the various exercises, the team of assessors rates the people who are assessed on dimensions, such as leadership, creativity, flexibility, motivation, and interpersonal skills.

Although there are wide variations in the types of exercises used, most assessment centers consist of (1) A standardized evaluation of behavior based on multiple job-related assessment exercises, (2) Multiple observers who have been trained in what to look for and how to evaluate it observe and record the behavior of those participating in the exercises, and (3) Pooled observer evaluations.

#### Criterion-related validity of assessment centers.

Assessment centers are among the more valid of selection instruments, although they do not achieve the level of validities obtained with intelligence tests (see table 15.10). A meta-analysis of 47 validation studies reports an average validity of .29 in the prediction of various job criteria (Gaugler, Rosenthal, Thornton, & Bentson, 1987). After accounting for the unreliability of the criteria and restriction in range, a corrected validity of .37 is found. Similar validities are reported in subsequent meta-analyses (Becker, Höft, Holzenkamp, & Spinath, 2011; Hardison, & Sackett, 2007; Hermelin, Lievens, & Robertson, 2007; Meriac, Hoffman, Woehr, & Fleisher, 2008).

Although the potential for adverse impact against black and Hispanic applicants is less than found in the use of some other predictors such as cognitive ability, minorities appear to score lower on assessment centers than white applicants and the differences are not trivial (Dean, Roth, & Bobko, 2008).

#### Construct validity issues.

The evidence is favorable with regard to the criterion-related validity of assessment centers but the construct validity of this approach remains in doubt. There are two primary issues. First, the evidence is generally weak for the discriminative validity of assessment centers (Sackett & Dreher, 1982). Assessment centers are designed to measure multiple dimensions (e.g, leadership, communication skills, drive, problem solving, consideration, influence over others) using multiple tasks (e.g., in basket, role plays, presentation, case analysis). Support for discriminative validity would be shown with (1) evidence that the correlations of assessment center ratings on a single dimension are highly correlated across the different tasks used to assess that dimension, and (2) the correlations of assessment center ratings on a single dimension across different tasks are higher than the correlations found for different dimensions on a single task. This is not what

is typically found. Instead, there appears to be a strong task factor in which assessments on the different dimensions are highly related. For example, the correlations among in-basket ratings of leadership, communication skills, drive, problem solving, and the other dimensions are typically much higher than the correlations between in-basket and role-play ratings on each individual dimension. These findings do not negate the evidence of criterion-related validity, but they do cast doubt on whether assessment centers actually measure the various dimensions that they purport to measure.

Meta-analysis	k	N	$r_{uc}$	$r_c$
Validity of overall assessment				
Arthur et al, 2003 (US)	258	83,761	.28*	.36
Gaugler & Thornton, 1987 (US)	44	4,180	.25*	.36
Schmitt et al, 1984 (US)	21	15,345	.41*	---
Hermelin et al, 2007 (UK)	27	5,850	.17*	.28
Becker et al, 2011 (Germany)	24	3,556	.33*	.40
Validity of individual exercises (Hoffman et al, 2015)				
In-Basket	30	5030	.14*	.18
LGD	24	5009	.13*	.17
Role-Play	18	4297	.12*	.16
Case analysis	11	2479	.15*	.19
Oral presentation	9	2741	.19*	.19
Multiple Correlation (using $r_c$ s with all five exercises)	---	974	----	.28

k = number of correlations; N = number of participants;  $r_{uc}$  = mean uncorrected validities weighted by sample size; \* = confidence interval for correlation excludes zero.

Table 15.10: Summary of Findings from Meta Analyses of Assessment Center Validities

Related to issues of discriminant validity, there is little understanding of why assessment centers are predictive of job-related criteria (Jones & Born, 2008; Woehr & Arthur, 2003). Klimoski and Brickner (1987) propose five possible reasons for the confusion in the interpretation of criterion-related validities. The reader should note that some of these alternative explanations for the validities found for assessment centers could be extended to other procedures based on evaluations of candidates such as the interview.

\* Do assessment center ratings contaminate criteria or vice versa?

In some cases, assessment evaluations are known to the supervisors who evaluate the performance of those who are selected based on assessment center ratings. In these cases, the performance evaluations are contaminated by the assessment center ratings. The reverse could occur as well. When the assessment center is conducted with current employees and how participants perform on criteria is known to the raters, the criterion could contaminate the

predictor. In a validation study it is crucial that those providing the performance appraisals used as criteria are blind to how employees performed in the assessment centers.

\* Do assessment center ratings reflect common stereotypes of the successful employee?

In these situations, those rating assessment center performances and those providing ratings on the criteria used in validation may possess similar stereotypes of a successful employee. Thus, assessment centers capture the biases of those providing criterion ratings. Contrary to this interpretation, Gaugler et al. (1987) found that higher validities were obtained when psychologists were the assessors as opposed to managers.

\* Are assessment center evaluations self-fulfilling prophecies?

In addition to contaminating performance evaluations, knowledge of how an employee performs in an assessment center could lead to self-fulfilling prophecies. This is not a problem necessarily unique to assessment centers. For instance, if supervisors know how employees scored on ability or other predictor measures, this knowledge can lead to expectations that are self-fulfilling. Given that assessment centers are often used to develop the participants as well as select among them, it would seem that assessment centers are especially vulnerable to self-fulfilling prophecies. Here is one example of how assessment center ratings are self-fulfilling. Supervisors know how their employees perform in an assessment center and then give special treatment to those who score higher than those who score lower. This special treatment leads to higher job performance by the higher scoring employees on the job. Thus, the initial expectations of the supervisors are fulfilled, not as the result of the constructs assessed in the assessment center but as the result of the supervisor's treatment of those assessed. Similarly, employees doing well in assessment center may develop high expectations for their own future performance that then carry over to the performance of the job. Those doing poorly might have low expectations for future success and subsequently fail on the job.

\* Are assessment center evaluations affected by the employee's past performance?

To the extent that assessors are exposed to a variety of information about past performances, their ratings may derive as much from the past performances of the person who is assessed as from the traits revealed during the assessment center. One way that this might operate is if assessors review biographical data that reveal past accomplishments. Another possible manifestation of this bias is an assessment center that samples actual tasks on the job. For instance, those who happen to have management experience probably perform better on an in-basket exercise than those without management experience.

\* Are assessment centers tests of intelligence?

The persons assessed in an assessment center with higher levels of intelligence generally receive higher ratings in assessment centers than those with lower intelligence. This suggests that those who do better in the assessment center later do well on the job because of their intelligence.

Sufficient data have been collected to conclude that assessment centers are useful tools in the selection and development of managers. Although assessment center ratings do predict performance on the job, it is not at all clear why. Now researchers need to search for an explanation of why this technique succeeds.

## References

It is of value to distinguish between referrals in which an applicant learns of an open position from an individual and references in which the applicant is described and possibly recommended. Referrals from current employees within an organization have a disproportionate impact on who is hired. According to some estimates, 30 – 50% of job openings are filled by means of referrals from current employees (Pieper, 2015). Those who are referred by current employees are more likely to be hired than those who are not referred (Pieper, 2015). Moreover, applicants who are referred from current employees tend to stay longer on the job for which they are hired and perform better than those who are not referred, although this effect appears to be moderated by the performance level and tenure of the current employee providing the referral (Pieper, 2015). Despite the apparent value of internal referrals, it is dangerous to use this as a basis for hiring decisions. Internal referrals tend to be given by those of the same race and gender as the applicant and can thus perpetuate discrimination against a minority group (Taber & Hendricks, 2003). Moreover, the research discussed in the chapter on groups and teams suggests that reliance on internal referrals can lead to a homogeneity that is conducive to groupthink and a lack of innovation.

Referrals may or may not be accompanied by a reference. Employers almost always ask for letters of reference when screening applicants. The hope is that these letters provide insight into the personal characteristics and capabilities of the applicants. Personal references are not among the best predictors, but neither are they among the poorest. The validities found for personal references range from moderate to low (Schmidt & Hunter, 1988). The criterion-related validity of the typical reference is probably much poorer than suggested in these meta-analyses. The references that are included in meta-analyses are among the more structured variety and are not representative of the typical reference which is unscored, qualitative, and not very informative. The situation is similar to the meta-analyses for unstructured interviews and work experience.

One problem with references is that they are typically lenient. The most likely explanation is that applicants pick as their references those people who they know will write a good letter. Another factor accounting for leniency is the fear of a lawsuit. In defamation of character lawsuits, the negative reference is untrue and injures the applicant's reputation. The defamation is called slander in spoken references and libel in written references. The fear of being sued is probably not a realistic fear in that the law provides conditional privilege to letter writers in which they are allowed to say what they think is true as long as there are some reasonable grounds for stating the opinion. The risk of being charged with defamation increases when the letter is aimed at traits of the applicant without any behavioral incidents to back up what is said. The chances of winning a defamation suit against a letter writer are even stronger if the applicant can prove that a negative reference is a lie.

Lawsuits can also result from violations of privacy such as when the letter writer reveals information that the letter writer was expected to keep confidential. Consider, for example, an applicant who took a drug test under expectations that the employer would not reveal the results to others. If the previous employer states that the applicant flunked the test, the applicant may have the basis for lawsuit on the basis of violation of privacy. Violations of privacy can also occur when a letter writer mentions activities that occurred outside the workplace. An example is an employer who hires a private detective to find out what an employee does after hours. The detective reports that the employee attended nudist camps on the weekend and this information is conveyed in a letter of reference.

Fear of lawsuits has led many employers to pass on providing letters of reference. When they do write these letters, they often only state whether an applicant was employed or not with them. Some will not even reveal that. This may seem a wise option, but not writing a letter also entails risks. It is possible to sue a previous employer or letter writer for negligent reference. In this case, the reference writer leaves out information that is relevant to a later misdeed. Suppose a physician has a history of drinking on the job and is fired and then hired by another hospital on the basis of a reference that states nothing about this misbehavior. If that physician then showed up drunk and as the result of intoxication harmed a patient, the letter writer could be found guilty of negligent reference.

Employers who fail to seek references are potentially guilty of negligent hiring if they hire an individual with past problems. Consider for instance an employer who hires an employee without checking on his or her references. The employee later commits a crime, and it is discovered that this employee had a past history in previous jobs of committing similar crimes. The employer in this case is potentially guilty of negligent hiring because of the failure to seek or consider references from previous employers. The video link below depicts an actual case of negligent hiring: <http://www.youtube.com/watch?v=fpQeHuAe4E4>

## Grades

A basis for selection decisions that is close to home is the use of grades. Employers often ask for the applicant's grade point average (GPA), and research findings suggest they tend to place a lot more emphasis on grades than on other factors that one might think deserve greater weight (e.g., work experience). Given the frequency with which grades impact selection decisions, it is comforting to know that those with higher GPA's score higher on measures of job success than those with lower GPAs. Meta-analyses report that GPA is positively related to subsequent performance in the job and salary (Roth & Clarke, 1998; Roth, BeVier, Switzer, & Schippmann, 1996; see table 15.11). The correlations are only low to moderate in size. Also, there is evidence that GPA is more predictive of early performance on the job than later performance. Nonetheless, evidence that GPA is at all related to job criteria is surprising considering the inflation of grades in universities and colleges. Why GPA is predictive remains a mystery. It is likely that GPA reflects some combination of motivation, conscientiousness, knowledge, and cognitive ability.

Criterion	Meta-analysis	k	N	$r_{uc}$	$r_c$
Job performance	Roth et al (1996)	71	13,984	.16*	.35
Training performance	Dye & Rock (1989)	200	-----	-----	.29
Promotions	(Cohen, 1984)	14	-----	.16*	-----
Starting salary	Roth & Clarke (1996)	8	1,238	.13*	.20
Current salary	Roth & Clarke (1996)	48	9,759	.18*	.28
First Year GPA grad business program	Kuncel et al (2001)	324	50,138	.25*	.35

k = number of correlations; N = number of participants;  $r_{uc}$  = sample size weighted mean correlation;  $r_c$  = corrected correlation; \*confidence interval for correlation excludes zero.

Table 15.11: Correlations of Grades with Work-related and Academic Criteria

Points to ponder:

1. Describe the typical assessment center as it is used in employee selection.
2. Describe the evidence for the validity of some of the exercises used in assessment centers.
3. There is some uncertainty about the construct validity of assessment centers. Describe the research that is the source of this uncertainty.
4. What are the alternative hypotheses for why assessment center evaluations are valid in the selection of employees?
5. What are the factors associated with grades including measurement qualities and constructs tapped that might account for the fact that they are positively related to future job performance?

### Emotional intelligence

For almost as long as psychologists have conducted research on general mental ability, they have explored the possibility of a general ability relating to their capacity to effectively relate to others. This construct has gone under various labels including social intelligence (Thorndike, 1935), practical intelligence (Sternberg, 1985), and interpersonal intelligence (Gardner, 1983). The latest attempt goes under the rubric of emotional intelligence and has attracted a huge amount of attention over the last two decades. Although attempts to develop instruments that measure these constructs usually produce disappointing results (e.g., see Gotfredson, 2003), psychologists continue to theorize about a type of ability that encompasses street smarts and social competence. The attention is mostly the consequence of a book by the same name which became one of the top popular management books of the last century (Goleman, 1995). As is often the case with psychological constructs originating in popular literature, the concept introduced in this book was confusing, ambiguous, and lacking in specificity. But the notion of emotional intelligence touched on intuitive notions about why people succeed or fail at work, even if it lacked a solid basis for research or rigorous application. It is not that hard to recall instances of people with high cognitive ability who failed because they were complete flops in



dealing with other people. Perhaps they were “clueless” in reading the feelings of other people and conveying their own feelings in a tactful manner. These individuals lack, according to Goleman, emotional intelligence.

### Three models of emotional intelligence.

Three models have guided the conceptualization and measurement of emotional intelligence. One of these takes an eclectic approach and views emotional intelligence as a composite construct made up of abilities and personality traits whereas the other two define emotional intelligence as either an ability or as a collection of personality traits.

#### \* The mixed model.

Although the construct of emotional intelligence captured the attention of the general population, its application has surged ahead of research attempting to flesh out what it really means. Rather than waiting until research and theory provided a clearer picture, many employers have rushed to use emotional intelligence as a means of selecting employees. The unfortunate consequence is that there is some confusion about this construct and how it is measured. According to Goleman, emotional intelligence is a mix of personality and ability traits consisting of five primary competencies: self-awareness, self-regulation, social skill, empathy, and motivation. The emotional competency inventory (ECI) is based on this conceptualization and measures these five competencies (Boyatzis, Goleman & Rhee, 2000). This and several other related instruments are based on what is referred to as a mixed model approach to emotional intelligence in which a smorgasbord of ability and personality items are included to measure emotional intelligence.

#### \* The ability model.

Because of the confusion surrounding the mixed model proposed by Goleman (1995), subsequent work attempted to clarify the construct of emotional intelligence by focusing on emotional intelligence as either a mental ability or a personality trait. The ability model stresses the cognitive component and views emotional intelligence as a component of overall intelligence. The best known proponent of this approach is Mayer and his colleagues (Mayer, Salovey & Caruso, 2008). They define emotional intelligence as the capacity of people to reason about emotions and use what they know to solve problems in everyday interactions with others. Emotional intelligence is viewed as a component of general intelligence and consists of four sub-abilities:

1. accuracy in perceiving emotions expressed by others
2. the capacity to use emotions to interact with others and facilitate thought about the emotions
3. the ability to understand the antecedents and consequences of variations in emotions and the verbal and nonverbal signals conveying these emotions, and
4. the ability to regulate one's own and others' emotions to accomplish goals.

As an example, imagine that an employee on a project team that is under extreme pressure to accomplish a difficult task. The supervisor and the fellow team members of the employee are in a state of high anxiety and stress. Emotional intelligence is obviously needed for the employee to

effectively work with his coworkers and his supervisor. It is essential that the employee accurately perceive the emotions that are expressed by coworkers and the supervisor. For example, if he mistakenly perceives anxiety as hostility and responds in a defensive manner, he is unlikely to gain the cooperation of fellow team members and the supervisor. It is also important that once he identifies the emotions expressed by others that he is able to use this knowledge to talk to them about these emotions, effectively think through the issues, and figure out ways of dealing with these issues. In other words, emotional intelligence means that the employee does not let emotions overwhelm and interfere with thought processes. It would also help if he understands the verbal and nonverbal language of emotion so that he can read changes in the emotions of coworkers and supervisors over time. Finally, emotional intelligence is reflected in the employee's ability to manage these emotions.

To measure emotional intelligence, Mayer and associates developed a 141 item test called the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT). Each of the four sub-abilities of emotional intelligence is measured with tasks. The picture tasks are used to measure the ability to perceive emotions from pictures. In the faces tests the respondents identify using a 5-point rating scale the extent to which various emotions are expressed in the pictures. In other tasks respondents are given either a landscape or an abstract design and rate the emotion conveyed in the picture using cartoon faces. The sensation and facilitation tasks are used to measure the ability to use emotions to facilitate thinking about the emotions. In the sensation tasks the respondent generates an emotion (e.g., envy) and then imagine a sensation that fits the emotion (e.g., is it hot or cold). In the facilitation task respondents indicate what moods would facilitate the accomplishment of a task or a behavior (for example, would it help in planning a group meeting to feel joy?). Understanding emotion is measured with blends and change tasks. The blends tasks require respondents to identify emotions that could be combined to produce other emotions (e.g., is depression the combination of sadness and anxiety?). The change task requires that they respondents select an emotion that represents an intensification of another emotion (e.g., is malice the result of intensification of aggression and envy?). Finally, the ability to manage emotions is measured with the emotion management and emotional relationship tasks. In the emotion management tasks, the respondents identify the most effective actions they could take to induce specific emotions in another person (e.g., what could the character in this story do to reduce his or her anger?). Finally, in the emotional relationships tasks respondents identify the actions that are most effective in dealing with various types of emotions. In all these tasks the “correct” answer (i.e., the response that indicates high emotional intelligence) is identified by experts on emotional intelligence (i.e., professors of psychology) or the consensus of a large sample of nonexperts.

There is research support for the reliability and the construct and criterion-related validity of the MSCIT (e.g. Iliescu, Ilie, Ispas & Ion, 2013; Rossen & Kranzler, 2009). Consistent with the original conceptualization of EI as a mental ability, a meta-analysis of the research using the MSCIT confirms that scores on this test are positively related to scores on verbal (corrected  $r = .26$ ) and general (corrected  $r = .30$ ) intelligence (Kong, 2014). Other researchers shows that emotional intelligence as measured by the MSCEIT is a second level factor of intelligence along with fluid intelligence, crystallized intelligence, quantitative reasoning, visual processing, and memory (McCann, Joseph, Newman & Roberts, 2014). Despite the support, the reliability and validity of the MSCEIT remains controversial and continues to receive criticism from other

researchers (Brannick, Wahl, & Goldin, 2011; Firoi & Antonakis, 2011; Maul, 2012; Palmer, Gignac, Manocha & Stough, 2005).

#### \*The personality model.

The other approach to clarifying emotional intelligence focuses on emotional intelligence as a personality trait. This approach is best represented by the work of Petrides and colleagues (Petrides & Furnham, 2001). Petrides proposes that there are two types of emotional intelligence. The ability construct corresponds to the Mayer, and colleague notion and consists of the capacity to process information on emotion. The second is a cluster of emotional self-perceptions that are and behavior predispositions and should be considered a component of personality. According to Petrides and Furnham (2001), the ability and personality types are independent. Thus, a person could have high ability to process information on emotion but could have self-perceptions and behavioral tendencies indicative of low trait emotional intelligence. Likewise, a person could have low ability to process emotional information but could have either low or high trait emotional intelligence. When measuring emotional intelligence as a cognitive ability, a maximum performance instrument is needed in which there are right or wrong answers (e.g., the MSCEIT). When measuring personality trait emotional intelligence, however, a self-report measure is appropriate. The trait emotional intelligence questionnaire (TEIQue) solicits self-reports of attributes considered part of personality trait emotional intelligence including adaptability, assertiveness, expression of emotion, management of emotion, self-esteem, impulsiveness, social competence, stress management, empathy, happiness, and optimism. Illustrative items are

1. Expressing my emotions with words is not a problem for me.
2. I find it difficult to regulate my emotions (reverse scored).
3. Given my circumstances, I feel good about myself.
4. Generally, I am able to adapt to new circumstances.

As in the case of the MSCEIT, there are advocates and critics of the measure as well as the conceptualization of personality trait emotional intelligence. The major criticism is that it mixes personality traits that are more appropriately measured individually rather than combined. As noted by Côté (2010), the personality trait approach in general and the TEIQue in particular “lumps together constructs that have different definitions” and adds confusion to the study of emotional intelligence.

#### Criticisms of emotional intelligence.

There are numerous critics of the conceptualization and measurement of emotional intelligence in the mixed, ability, and personality approaches.

1. Kaplan, Cortina, and Ruark (2010) argue that the efforts to develop measures of mixed and ability emotional intelligence are backward. Rather than starting with the construct of emotional intelligence, researchers should first define the criterion space that they wish to predict and then work back to the constructs that will serve as predictors. Moreover, they argue that EI is not a

set of abilities but are sets of knowledge and skills “that can change and can be developed over time.”

2. Antonakis and Dietz (2010) argue that contrary to some claims, there is no neuroscience basis for emotional intelligence. Moreover, they argue that research needs to move forward based on the ability definition of emotional intelligence rather than conceptualizing emotional intelligence as a mix of abilities and personality traits.

3. Van Rooy, Whitman, & Viswesvaran (2010) assert that there are too many issues remaining for measures of EI to be used in high stakes assessment. There is a potential for adverse impact on ethnic or gender groups. Also, there is too little research using actual employees or job applicants. There remains the potential for many of the biases commonly found in self-report measures to enter into the measurement of emotional intelligence, especially personality trait emotional intelligence.

4. Matthews, Zeidner, & Roberts, (2012) and Roberts, Matthews and Zeidner (2010) conclude that, in contrast to general mental ability, there is no general factor of emotional intelligence that predicts performance across a wide variety of situations. They advocate defining emotional intelligence in terms of specific domains rather than attempting to measure general emotional intelligence.

5. Davies, Stankov & Roberts (1998) question the viability of ability based emotional intelligence tests such as the MSCEIT. They report low reliabilities in the use of consensual scoring in which the correct answer is based on the average rating of a sample of experts or large sample of respondents.

6. Locke (2005) rejects the entire concept of emotional intelligence. He argues that emotions are automatic and subconscious. One can reason about emotions but cannot reason with it as assumed by Mayer and his colleagues. In addition, the definition of emotional intelligence is constantly changing and all-inclusive, thus rendering the construct “unintelligible.” Intelligence as the capacity to process information and problem solve is applicable to a variety of domains including emotions. He basically argues that the construct of intelligence is only valid when used to understand information processing, and it is erroneous to propose a different type of intelligence specific to emotions.

#### Meta-analyses of criterion-related validities for emotional intelligence.

In the most comprehensive, empirical evaluation of measures of emotional intelligence, Joseph, Jin, Newman and O’Boyle (2015) report results from a meta-analysis of research using ability and mixed measures of emotional intelligence. The findings are summarized in table 15.12.

Predictor Variable	Supervisor rated job performance			Self-rated job performance		
	k	N	r <sub>c</sub>	k	N	r <sub>c</sub>
Mixed emotional intelligence	15	2168	.29	10	1602	.41
Ability emotional intelligence	13	1287	.20	3	219	.00
Conscientiousness	64	12434	.21	8	2621	.31
Extraversion	56	9664	.09	8	2621	.23
Emotional stability	53	9184	.11	8	2621	.26
Cognitive ability	425	32124	.44	4	3298	.04
General self-efficacy	13	2703	.13	3	686	.51

k = number of correlations; N = number of participants; r<sub>uc</sub> = sample size weighted mean correlation; r<sub>c</sub> = corrected correlation.

Table 15.12. Results of Meta-analysis of the Correlations of Mixed and Ability Emotional intelligence with Job Performance

Both mixed emotional intelligence and ability based emotional intelligence predict supervisor rated performance. Thus, it appears that there is support for the criterion-related validity of both ability-based and mixed measures of emotional intelligence. However, after controlling for conscientiousness, extraversion, self-rated performance, general self-efficacy, emotional stability, and cognitive ability, the relation of mixed emotional intelligence with performance drops to zero. These findings suggest that these other variables fully explain why the mixed emotional intelligence measures predict performance. By contrast, ability based emotional intelligence (e.g., studies using the MSCEIT) had a positive relation to supervisor rated performance even after controlling for these other variables.

These findings have several practical implications. The results provide support for the construct validity of emotional intelligence as a type of mental ability. Cognitive ability and personality tests contribute more to the prediction of job-related criteria than MSCEIT and when combined, the MSCEIT adds little to prediction beyond what is achieved with cognitive ability and personality tests. Also, the construct validity of cognitive ability and personality tests is much more established than that of the MSCEIT. Add to these disadvantages, the fact that the mixed measures are proprietary and more expensive than the measures of these other variables, there seems to be little support for use of mixed emotional intelligence in the screening of applicants. The researchers conclude that “.....practitioners will likely be faced with a choice between a shorter, more expensive mixed EI measure with lower criterion-related validity versus a much longer battery of personality, cognitive ability, and self-concept measures with notably higher criterion-related validity” (p 316).

### Situational judgment tests

Situational interviews use situational judgment as a primary basis for interviewer evaluations of applicants. Also situational judgment tests are used in assessment centers, the measurement of

emotional and social intelligence, and in some personality questionnaires. Among the first situational judgment tests were presented in the 1940s to predict performance in supervisory roles (File, 1945). A product of these efforts was the How Supervise?, a test consisting of short vignettes in which the respondents chose among alternative responses the approach that they believe would be best approach for a supervisor to take in handling the situation. In the 1990s the approach was rediscovered as a “low fidelity simulation” that was applicable to selecting employees in a variety of types of jobs (Motowidlo, Dunnette & Carter, 1990). A situational judgment test (SJT) starts with the use of the critical incidents method of work analysis. Experts such as present employees and supervisors generate specific examples of employees who succeeded or failed in their performance. These incidents are turned into items in a written test. Applicants choose from among alternative responses that vary in the extent to which they represent effective ways of handling the situation. Take, for example, the following hypothetical item that is used in selection of salespeople:

A customer becomes angry and starts yelling obscenities at you when you inform him that the item he wants to purchase is not currently in stock. There is line of other customers waiting for service who hear his tirade. How would you handle this situation?

- a. Immediately call the police or store security personnel to either arrest the person or escort the individual out of the store.
- b. Ignore the customer and turn your attention to the other customers.
- c. Seek assistance from your supervisor or another salesperson.
- d. Apologize and take the customer aside to discuss possible ways of obtaining the item.
- e. Explain to the customer why the item is not in stock and assure him that he will get it as soon as it is available again.

The options available to the test taker vary across situational judgment tests. The most frequently used options are to have the test taker pick the best and worst response or rate each option on effectiveness. The scoring of the test is either rationally based on judgments of experts of what is an effective or ineffective response or empirically based on the ability of the responses to distinguish between effective and ineffective employees. These are the same scoring options previously discussed for the use of biographical data in employee selection.

How well do situational judgment tests perform in the predicting important job-related criteria? A meta-analysis of the criterion-related validity of situational judgment tests distinguishes among the predictor constructs that are the target of the test, and the results are summarized in table 15.13 (Christian, Edwards & Bradley, 2010). Many of the tests used in selection do not define a specific construct and instead use a composite score. The highest validities are reported for assessments of leadership potential and the heterogeneous composite. There is also evidence for the criterion-related validity of situational judgment tests that measure social skills, job knowledge, and personality tendencies.

Construct measured by SJT	k	N	$r_{uc}$	$r_c$
Job knowledge and skills	4	695	.15*	.19
Interpersonal skills	17	8,625	.19*	.25
Teamwork skills	6	573	.29*	.38
Leadership	51	7,589	.21*	.28
Personality composites	4	423	.30*	.43
Conscientiousness	7	908	.19*	.24
Heterogeneous composites	45	9,681	.21*	.28

k = number of correlations; N = number of participants;  
 $r_{uc}$  = mean uncorrected validities weighted by sample size;  
 \* = confidence interval for correlation excludes zero.

Table 15.13: Criterion-related Validities of Various  
 Predictor Constructs Measured with Situational Judgment Tests

Why situational judgment tests are able to provide a basis for valid prediction is still open to question. One hypothesis is that situational judgment tests capture implicit trait policies that are appropriate to performance of a job (Motowidlo, Hooper & Jackson, 2006). Implicit trait policies are beliefs about how various traits and the behaviors reflected in these traits affect job performance. For example, based on previous experience and their personality traits, an applicant may have an implicit trait policy that it is best to act aggressively when dealing with hostile people. When given a situational judgment test posing a situation involving a hostile customer, the implicit theory of this applicant leads him to select an option involving an aggressive response. Another applicant may have an implicit trait policy that it is best to use empathy when dealing with these situations, and in choosing among the options in the situational judgment test, picks the option involving the use of empathy. Assuming that the evidence on which the test is based shows that empathy is in fact the response of more successful applicants, the applicant choosing the empathic option receives a higher score on the test. This applicant is more likely to succeed on the job because he possesses the implicit theory that is the more effective guide to behavior in the job.

Situational judgment tests are most often delivered in paper-and-pencil format. As computer and video technologies have improved and become more accessible, employers are increasingly using multi-media formats to present these tests. In video-based situational judgment tests, the scenario is acted out in a video and respondents choose from alternative responses. For instance, in the hypothetical item presented earlier, actors play the salesperson and a hostile customer. The videotape segment is shown to applicants who then choose from among the alternative responses. In computer-based situational judgment tests the applicant is shown the video online and chooses from among the options. The use of video rather than the written word is more engaging and potentially reduces adverse impact by relying less on verbal comprehension. The authors of the meta-analysis summarized in table 15.13 report that situational judgment tests using multi-media and measuring heterogeneous composites have higher corrected criterion-related validities ( $r_c = .36$ ) than situational judgment tests using paper-and-pencil formats

( $r_c = .25$ ) (Christian et al, 2010).

### Polygraph and integrity testing

Theft and other forms of dishonest behavior are becoming a major cost factor that employers want to combat through better selection. In the past, polygraph testing (i.e., lie detectors) was used commonly in department stores and other retail organizations in the United States to screen out applicants who were likely to steal money or merchandise. In polygraph testing, applicants are asked critical questions such as whether they had ever stolen from employers, used illicit drugs, or committed other crimes. They are also asked control questions that are neutral and are used to establish a baseline. The heart rate, skin conductivity, and other physiological responses to the critical questions and the control questions are compared to determine if the applicant is lying or telling the truth. This determination is based in large part on the judgment of the polygraph operator.

The validity of polygraph testing is hotly disputed in the research literature with many psychologists questioning whether the various approaches to this procedure are accurate enough in detecting liars to justify the high rate of false positives (i.e., people identified as lying who were actually telling the truth). The critics of polygraph testing also question the construct validity of the procedure. In other words, doubts are raised about whether it is valid to claim that the procedure is tapping an underlying propensity to lie, steal, and commit other unethical, immoral, and illegal acts. Moreover, polygraph testing is based on the erroneous belief that anxiety is necessarily an indicator of lying. Contrary to this notion, anxiety is potential caused by factors other than lying (National Research Council, 2003; Saxe, Dougherty & Cross, 1985). Despite the widespread skepticism of academic researchers about the use polygraph testing, researchers continue to debate the merits of the procedure (Palmatier & Rovner, 2015; Ginton, 2015).

In the U. S., federal legislation banned the use of polygraph testing for most private employers (the federal government is still allowed to use polygraph testing!). In the attempt to predict dishonesty, employers have turned to integrity or honesty tests. There are two types of such tests. Overt integrity tests ask applicants to identify past misdeeds, such as arrests, convictions, and the like or asks applicants to state their attitude toward various dishonest acts. A covert test is not so obvious and often comes in the form of personality tests that attempt to measure personality traits that are hypothesized to predict dishonesty (e.g., low conscientiousness).

There is disagreement about the value of integrity tests (see conflicting estimates in table 15.14).



Meta analysis		k	N	r <sub>uc</sub>	r <sub>c</sub>
Van Iddekinge et al 2012	Criterion (total sample)				
	Job Performance	74	13,706	.13*	.18
	Training performance	8	1,530	.13*	.16
	Criterion (predictive design, applicants, non-self-report criteria)				
	Job Performance	24	7,104	.11*	.15
	Training performance	5	962	.05*	.07
	Counterproductive work behavior (CWB)	10	5,056	.09*	.11
	Theft	3	1,481	.03	.04
	Withdrawal behaviors	5	5,873	.12*	.15
	Turnover	13	22,647	.06*	.09
Ones et al 1993	Criterion (total sample)				
	Job Performance	222	68,772	.21*	.34
	Counterproductive work behavior(CWB)	443	507,688	.33*	.47

K = number of correlations; N = number of participants; r<sub>uc</sub> = sample size weighted mean uncorrected validities; r<sub>c</sub> = corrected validities; \* = confidence interval for the correlation excludes zero.

Table 15.14: Summary of Two Conflicting Meta-Analyses of Integrity Tests

Some I/O psychologists are quite positive about integrity testing and believe that they predict not only dishonest acts on the job but also job performance (Ones, Viswesvaran, & Schmidt, 2012). Others are much less positive. Among the latter are the authors of a recent review of the research on paper and pencil tests of honesty (Van Iddekinge, Roth, Putka & Lanivich, 2012). This meta-analysis reports validities for integrity tests in the prediction of job performance on the order of  $r = .15$  (after correcting for unreliability in the criterion). This could be an overestimate based on the authors' report that publishers of integrity tests were more willing to allow disclosure of positive results while apparently blocking the publication of unfavorable results. The evidence in support of the use integrity tests is, in the opinion of this author, quite weak. Such devices offer limited protection against crooks, and even that is offset by their notorious false alarm rate or tendency to misidentify good people as dishonest (Murphy & Davidshofer, 2005). The same is true for other kinds of honesty tests such as the polygraph. Ironically, though now largely illegal for hiring, the polygraph is used as the criterion in some assessments of the validity of paper-and-pencil measures!

Honesty testing may have its place, but only in the hands of the ethical, competent professional. Those are often not the hands in which you find it. At best integrity tests are among the less predictive of later performance and honesty, and employers should never use them as the only basis for a selection decision.

### Individual assessments

This approach is defined by Ryan and Sackett (1987) as "one psychologist making an assessment decision for a personnel-related purpose about one individual" (p. 456). If the reader is somewhat confused as to how this approach really differs from other approaches to selection, he or she is not alone. The individual assessment approach could include any of the constructs and

methods reviewed in this chapter. A survey of individual assessment practices by I/O psychologists provides some clarification, but not much (Ryan & Sackett, 1987). Individual assessments are most often conducted to evaluate candidates for middle and upper level management positions. They are mostly used for purposes of initial hiring and promotion. The entire assessment lasts from two hours to a full day and occasionally lasts into a second day. Almost all individual assessments include an interview, but most of those stating they use an interview state that they use a loosely structured or unstructured interview rather than a strictly structured format. Over eighty percent include a personal history form, ability tests, and personality inventories. When the candidates were for upper management positions and the assessment was the purpose of selection, the most common method of conveying the results is a narrative description of the candidate without a recommendation. However, many assessments include a specific recommendation as well as a narrative report. The typical individual assessment rests heavily on the subjective, holistic interpretation of interview, ability, personal history, and personality data. It is intended to describe the candidate as an entire person so as to provide the basis for an assessment of fit to a position. One conclusion is obvious from this survey of practices. The practices used by psychologists in conducting individual assessments vary widely.

A meta-analysis of the validities obtained with individual assessments reveals an uncorrected, sample size weighted mean validity of .24 based on 37 validity coefficients and total sample of 3,922 (Morris, Daisley, Wheeler, & Boyer, 2015). The validity coefficient found after correcting for unreliability in the criterion was .30. The corrected validity suggested that the level of validity surpassed zero in most studies, but that there was large variability in the strength of prediction across studies in predictive validity. Most individual assessments include cognitive ability tests, interviews, a personality test of conscientiousness, and biodata. Based on average validities obtained for each of these predictors and the average intercorrelations among them, Bobko, Roth and Potosky (1999) estimated that the optimal weighted composite of these four predictors should ideally allow a predictive validity of .63. The .30 validity obtained for individual assessments in this meta-analysis falls far short of this. The authors conclude that “When placed in the context of the validity of the components, the support for individual assessment was only modest. That is, although there is evidence for the predictive validity of individual assessments, these validities do not exceed what could be obtained from use of a cognitive ability test or structured interview alone, and the overall estimate of .30 is similar to what could be obtained from a self-report biodata measure (p. 15).” An important question is whether the individual assessments sampled in this meta-analysis are representative of individual assessments. Many individual assessments do not use quantitative evaluations of the candidate by the assessor and instead consist primarily of qualitative narratives. The studies in this meta-analysis by necessity were probably more structured than typical at least to the extent that they used structured rating scales. Otherwise how could one compute a correlation between an evaluator’s assessment and the criterion measures? Higher validities are expected for structured than for unstructured selection procedures. Consequently, the corrected validity obtained in this meta-analysis is probably an overestimate of the true validity of individual assessments.

Although higher validities are likely when the individual assessment tools are used without the subjective judgment of the assessor, there is potential value in an individual assessment. In selection situations where a high salary individual is hired for a critical position, the individual

assessment allows the psychologist to search for information that may not have been included in the test battery or personal history. Occasionally a critical piece of information is found that swings the decision dramatically in favor of or against the candidate. Paul Meehl (Grove & Meehl, 1996) referred to this as the “broken leg” scenario in explaining how clinical judgment could have value.

“He considered the situation of a sociologist studying leisure time activities who has worked out a regression equation for predicting whether people will go to the movies on a certain night. The data indicate that Professor X has a probability  $p = .84$  of going to a movie on Friday night, with the equation including demographic information such as academic occupation, age, and ethnicity, and ideally some previous statistics on this individual. (It is, of course, a mistake to assume that all statistics must be cross-sectional and never longitudinal as to their database.) Suppose that the researcher then learns that Professor X has a fractured femur from an accident of a few days ago and is immobilized in a hip cast. Obviously, it would be absurd to rely on the actuarial prediction in the face of this overwhelmingly prepotent fact” (p. 307). Silver bullets that allow all other information to be ignored are the exception rather than the rule in employee selection. Moreover, the broken leg scenario does not negate the proof that generally speaking the use of objective data without human judgment is superior in predicting future events than the use of human judges who clinically interpret the information. Nevertheless, the inclusion of an individual assessment is probably advisable in high stakes selection as long as the individual assessor is not allowed to distort the objective information. The best solution is to do both, i.e., use the objective information without human interpretation and use the subjective judgment of the individual assessor.

Points to ponder:

1. Compare and contrast the personality, ability, and mixed model approaches to emotional intelligence. What has been found for each approach in the research attempting to validate EI as a predictor?
2. Discuss the pros and cons for using emotional intelligence to select employees.
3. One argument has been that emotional intelligence is important but the focus should be on training employees to be emotionally intelligent, not selecting among them on emotional intelligence scores. What do you think?
4. What is an integrity test and what are the types of items used in these tests?
5. What do you make of the conflicting results in the meta-analyses of the criterion-related validities of integrity tests?
6. How would you evaluate the ethical and moral issues surrounding the use of test such as an integrity test that is a predictor of the potential of the person to steal? Do you think such tests should be used only if they are shown to have criterion-related validity, or do you think they should not be used even if they have criterion-related validity?
7. What problems appear to plague the validation research on integrity tests?

Comparisons of Predictors on Validity, Adverse Impact, and Applicant Reactions

So how do the various selection tools stack up on their validity, their potential adverse impact against protected and disadvantaged groups, and reactions of applicants? Table 15.15 summarizes the meta-analyses of the validities obtained for various selection tools.

Predictor	Corrected Criterion Related Validity
Structured interviews	.57
Cognitive Ability	.56
Job Knowledge	.48
Work Samples (verbal)	.45
Assessment Centers	.36
College Grades	.35
Biographical Data	.32
Individual Assessments	.30
Situational Judgment Tests	.28
Experience	.27
Conscientiousness	.23
Unstructured Interview	.20
Integrity Tests <sup>1</sup>	.18 (.34)
Training/Experience Evaluations	.17
Education	.09
Interest Inventories	.10
Handwriting Analysis	.02
Projective Personality Test	.00

<sup>1</sup> The level of validity in predicting job performance is disputed in conflicting meta-analyses.

Table 15.15: Comparison of Alternative Predictors on Approximate Corrected Validities in Predicting Job Performance

Each correlation has been corrected for unreliability in the criterion (job performance). Some also are corrected for restriction of range. Consequently, the correlations (i.e., the validity coefficients) reflect an ideal. In other words, the validities are what an employer could achieve with the predictor if that employer had perfectly reliable measures of performance and, in the case of coefficients corrected for range restriction, a wide range of scores on the predictor and criteria. It is also important to note that in the case of references and experience, the research was conducted using structured procedures. Handwriting analysis (i.e., graphology) is not discussed in the chapter. Although not frequently used in the United States, some European employers use it. It involves inferring from a sample of handwriting a variety of personality and cognitive traits.

Table 15.16 summarizes the results of meta-analyses on the adverse impact of various selection tools in the evaluation of black and Hispanic applicants. A positive value reflects more bias against black or Hispanic applicants. The findings in this table and table 15.15 suggest that there is a dilemma confronting employers seeking to maximize criterion-related validity and at the same time avoid discrimination against minorities. The most valid procedures also have the potential of adversely affecting the hiring of minorities and in some cases women. There are no

easy answers to this issue. Employers cannot just decide to use the most valid procedure regardless of the adverse impact. Neither can employers decide to ignore the validity of procedures and simply use procedures on the basis of whether or not they have adverse impact. Instead, they must walk a fine line between the two options. This dilemma is the topic of much discussion and research. For discussion of the issues and some creative solutions, the reader is referred to Ployhart and Holtz (2008) and Kravitz (2008).

Predictor	White vs Black	White vs Hispanic	Source
Cognitive Ability	1.10	.72	Roth et al (2001)
Work Sample	.73	---	Roth et al (2008)
Assessment Centers	.52	.28	Dean et al (2008)
Job Knowledge	.48	.47	Roth et al (2001)
GPA	.43	---	Roth & Bobko (2000)
Situational Judgment Test	.38	.24	Whetzel et al (2008)
Biodata	.33	---	Bobko et al (1999)
Structured Interview	.23	.17	Huffcutt & Roth (1998)
Unstructured interview	.32	.71	Huffcutt & Roth (1998)
Personality/ Extraversion	.10	-.01	Hough et al (2001)
Personality/Conscientiousness	.06	.04	Hough et al (2001)
Personality/Adjustment	-.04	-.01	Hough et al (2001)
Personality/Agreeableness	.02	.06	Hough et al (2001)
Personality/Openness	.21	.10	Hough et al (2001)
Integrity tests	.07	-.05	Ones & Viswesvaran (1998)

Values are sample size weighted mean d scores. D scores are standardized differences between groups (difference between mean on predictor of each group divided by pooled standard deviation of the predictor) . The higher and more positive the value, the more adverse impact against the minority group.

Table 15.16: Adverse Impact on Minority Groups of Predictors

Finally, how do applicants react to the various selection procedures? Table 15.17 summarizes a meta-analysis of research from fifteen European countries as well as the United States and South Africa (Anderson, Salgado, & Hülshager, 2010). Summarized in the table are the mean ratings of overall favorability. The predictors fall into three general categories. The most preferred are work samples and interviews. Resumes, cognitive tests, references, biodata, and personality tests, follow in order of preference. The least preferred are honesty tests, personal contacts, and graphology.

Selection procedure	k	N	Mean favorability	95% Confidence Interval
Work samples	23	3,388	5.38	6.47 – 4.29
Interviews	25	3,338	5.22	5.43 – 5.00
Resumes	19	2,565	4.97	4.97
Cognitive tests	26	3,683	4.59	5.30 – 3.89
References	21	2,665	4.36	4.76 – 3.96
Biodata	19	2,380	4.28	4.83 – 3.74
Personality tests	25	3,201	4.08	4.61 – 3.54
Honesty tests	19	2,565	3.69	4.41 – 2.96
Contacts	22	2,738	2.59	3.07 – 2.10
Graphology	21	2,738	2.33	2.70 – 1.96

k = number of sample means; N = number of respondents;  
Mean favorability = overall favorability rating of the selection procedure

Table 15.17: Summary of Meta-Analysis of Applicant Reactions to Selection Procedures

## Drug Testing

Drug testing is not psychological testing and for that reason is examined separately from the other selection procedures reviewed in this chapter. It deserves attention because it is among the most controversial approaches to screening out applicants for employment, and its use has increased dramatically among employers. Moreover, it should be evaluated on the basis of its validity and reliability the same as any other selection procedure. In a survey of human resource management professionals conducted by the Drug and Alcohol Testing Industry Association (DATIA) in 2011, 71 percent said that their organizations were involved in some type of drug testing of applicants prior to hiring

(<http://www.globaldrugpolicy.org/Issues/Vol%205%20Issue%204/Basic-11-22Efficacy%20Study%20Publication%20Final.pdf>).

Fiftyseven percent indicated that their organizations tested all applicants for drugs prior to hiring. Larger private employers (>2,500 employees) were more likely to engage in drug testing of applicants than smaller employers and government agencies.

The use of drug testing for applicants is based on the belief that drug usage is widespread and directly linked to low productivity and other negative outcomes. These assumptions are contradicted by the findings on the actual use and impact of illicit drugs. In a national survey conducted in the early 2000s, approximately 14 percent admitted to using some type of illicit

drug in the last 12 months (Frone, 2006). Approximately 11 percent indicated that they had been high or under the influence of an illicit drug in the last twelve months. However, the incidence at work was much lower. Approximately 3.1 percent indicated the use of an illicit drug at work in the last twelve months and 2.88 percent indicated that they had been high or under the influence of a drug at work during the same period. The highest rates of use of illicit drugs were among young men (18 – 30) in occupations where there is low visibility of work behavior, employees work in isolation, low levels of supervision, a lack of commitment to the occupation or organization, high mobility at work, and a lack of company policy pertaining to drug use. Based on the low frequency of use and impairment, Frone (2006) concludes that for most employee drug use in the workplace should not be a major concern and that to the extent that there is drug testing it should be focused on those categories of workers who represent the greatest risk of drug use.

There is also a widespread belief that the use of illicit drugs is responsible for negative work outcomes. There is evidence that on-the-job use of illicit drugs is related to work injuries and absenteeism (Bass et al, 1996; Frone, 1998) but the research suffers from methodological issues that limits the ability to draw strong conclusions about the linkages. Frone (2013) concludes from a review of this research that it is a myth to state that there is an epidemic of drug use that is damaging productivity. He also suggests that claims for the catastrophic effects of illicit drug use on accidents and absenteeism are overblown. Others have reached similar conclusions (e.g., Normand, Lempert & O'Brien, 1994; Newcomb, 1994). Despite the limited research, there is good reason to be concerned about drug use in the work place and to implement policies and educational efforts to prevent it. This is not to suggest that employers should condone the use of any substance that would impair performance or put employees, customers, and others at risk. However, the hysterical pronouncements of widespread workplace drug use are overblown. The use of illicit drug use in the work place is not sufficiently prevalent to warrant widespread use of tests that violate privacy. The tests used to detect drug usage err to some extent and employers using them should carefully consider whether the damage incurred by falsely rejecting applicants who test positive is worth the search for the few who test positive for drugs who should be denied employment. Additionally, the negative reactions of applicants to drug testing could damage recruiting and create a negative image of the organization.

There is wide variability in the quality of these tests. You get what you pay for, and an employer who uses cheap tests runs the risk of false positives (i.e., people who test positive for using illegal drugs but who have not used such drugs). The following video is from activists who are opposed to all drug testing. Despite their somewhat strident assertions, they identify some valid criticisms of some of the less reliable drug tests on the market and the risks of false positives.

<http://www.youtube.com/watch?v=djXVnmrlKvE&feature=related>

If drug testing is used to screen applicants, employers should invest in tests that are accurate. The most accurate are two-stage tests. First there is an initial test based on a urine or hair sample. If the person tests positive for drug use, then there is a confirmation test which is usually much more expensive. The following video demonstrates the steps taken in conducting a confirmatory drug test.

<http://www.youtube.com/watch?v=aVLDkXj4K2A>

Points to ponder:

1. What are the dilemmas in the use of selection procedures revealed in the meta-analyses of their criterion-related validities and the adverse impact they have on minorities and other groups?
2. Discuss the issues surrounding the use of drug testing. Do you think they should be used to screen applicants? Why or why not?

## Conclusions

The selection of employees was among the first topic tackled in the application of psychological science to work and organizations. Over a century of research has generated a storehouse of selection procedures that employers can use to select employees. The research shows that selection procedures can contribute to organizational effectiveness as well as the satisfaction and well-being of employees by providing a good fit to KSAOs.

Some of the predictors constitute “signs” of future performance in that they tap into constructs related to later performance on the job, whereas other predictors provide direct samples of the work. Some rely on subjective judgment of people and self-report whereas others are more objective and rely on hard data. Cognitive ability tests and personality questionnaires constitute signs of future performance, whereas the most obvious sampling approach is the work sample. Some predictors are structured in that they contain standardized, quantitative procedures that are based on the knowledge, skills, abilities and other characteristics required in the job. Others are unstructured in that they allow information gathering and evaluation to vary across individual applicants rather than attempting to focus solely on specific KSAOs or constrain decision makers. Finally, some predictors generate scores that represent maximum performance (e.g., cognitive ability tests) whereas others generate scores that represent typical performance (e.g., personality questionnaires).

To the extent that the objective of selection is to find the right person for the job or the organization, the scientific approach to selection is the preferred approach. It is the approach that provides the most reliable assessments and the strongest bases for predicting future performance. The scientific research on predictor measures shows that some are more predictive of job success than others. Cognitive ability tests are clearly among the best selection tools in terms of both their criterion-related and their construct validity. Tests of some personality traits are among the least predictive. The scientific approach to selection has shown that where human judgment is involved and the objective is to forecast future performance of applicants, predictor measures should be structured. Structuring of a selection procedure to increase job-relatedness, standardization, and the evaluation of applicants increases criterion-related validity. The best example of this is the interview. Those interviews that are highly structured as a consequence of their job-relatedness, standardization, and use of behavior-based quantitative rating scales, achieve much higher criterion-related validities than unstructured interviews on which the data gathering is haphazard and the idiosyncratic biases of interviewer are allowed to influence the results. Although there are differences among predictor measures in how well they allow the forecasting of success on the job, even the less predictive measures are sometimes useful and occasionally can contribute additional information in hiring decisions. Each of the procedures



reviewed in this chapter potentially provides a piece of the selection puzzle, but none should serve as the sole basis for selection decisions. All fall short of perfection, and the best approach is to use more than one in making decisions about hiring for a position.

It is important to acknowledge the dilemmas that exist in implementing selection practices. Accurately predicting future performance can conflict with recruitment in so far as some rigorous procedures may evoke negative reactions from applicants. Good prediction does not always go hand-in-hand with construct validity in so far that uncertainty surrounds the constructs measured by some of our best predictors (e.g., assessment centers and biodata). Some of the best predictors (e.g., mental ability tests) have the largest adverse impact on the hiring of minorities. Issues and rules surrounding fair employment practices are not limited to the adverse impact of intelligence tests on minority groups, or to tests or even selection per se. Included are personnel decisions and tools of any kind that affect the treatment of groups protected under the law. All of the predictors discussed in this chapter could be used to justify discrimination against minorities.

Another dilemma in the use of selection procedures involves the role of the larger organizational context. As stated at the beginning of the text, the I and the O in I/O psychology should not and cannot be entirely separated as if they had nothing to do with each other. It is instructive to return to some of the organizational factors discussed in earlier chapters that provide the context for selection. Two organizational considerations are finding the best fit to the organization in addition to or instead of the job and communicating the values, norms, and other attributes of the organizational culture. Much of the work on selection focuses on the fit of the person to the specific job, but providing a fit to the larger organization is another important consideration (Bowen, Ledford & Nelson, 1991). Organizations are hiring people for how well they can fit into the entire culture and their potential to perform a variety of jobs rather than simply the first position they occupy. Hiring for organizational fit does not mean that the scientific approach is not relevant. One can assess the knowledge, skills, abilities, and other characteristics required in the larger organization as well as a specific job. These assessments are likely to benefit from structured procedures. Most importantly, one can subject assessments of organizational fit to validation just as one can validate assessments of fit to specific jobs.

Selection procedures are embedded within the culture, values, norms, in an organization, and serve organizational functions in addition to providing a good fit of employees to their jobs (Dipboye, 2015). The selection process and other human resource management practices are important means of communicating and maintaining the organization. In a strong organizational culture selection practices can have “a symbolic or signaling function by sending messages that employees use to make sense of and to define the psychological meaning of their work situation” (Bowen & Ostroff, 2004, p. 206). As a consequence, selection practices in some organizations are more akin to rites, ceremonies, and rituals than rigorous assessments. A dilemma occurs when a procedure succeeds in fulfilling important functions at the organizational level while failing in finding the best person for the job or organization, or vice versa. These and other dilemmas are not insolvable. The challenge for future researchers is to find solutions.

## CHAPTER 16: EPILOGUE



A lot of ground has been covered in this review of I/O theory, research, and application. Lest the reader thinks that he or she is now an expert, the truth is that this book has only skimmed the surface of the large body of work that now constitutes the field of I/O. This final chapter provides an overview to help the reader digest the material discussed in this text and to provide some guideposts for further explorations of the field. It is not a detailed summary but an outline of what I consider the primary lessons that the reader can take away. It reflects personal views gleaned from the accumulated research findings and a career as an I/O psychologist that has spanned over 40 years. Many of these views are provocative. Not all practitioners and scholars in the field will agree with my conclusions and some may strenuously disagree. But a scientific field progresses through clashes of ideas, and it is in the spirit of spawning discussion that I have written this concluding chapter. It is my sincere hope that it will lead to deeper processing on the part of the reader. Opposing views are welcome!

### Three Levels of Generality in Practical Principles

I will start by asserting that the field of I/O psychology is guided by three general objectives. First, there is the practical objective of improving the effectiveness of individual employees and work groups in the performance of their tasks as well as the effectiveness of the organization in which they are embedded. Second, there is the objective of improving the well-being of individual employees in the organization. Well-being is reflected in positive work related attitudes as well as physical and mental health. Understanding is the third objective. In their theorizing I/O psychologists attempt to provide explanations for why employees behave, think, and feel the way they do in the performance of their work roles. They also attempt to understand why some interventions work better than others in their effects on well-being and effectiveness. I have ordered the lessons that I consider most important according to their generality and level of abstraction. At the ground level are relatively concrete hypotheses for enhancing well-being, effectiveness, and understanding. These are hypotheses that have received enough support to justify calling them recommendations that both employer and employee would be wise to use. At the next level are more abstract, midrange principles that provide a framework to guide the more concrete concepts. The principles at this level provide a context for the lower level suggestions. Finally, at the top of the hierarchy are two general principles that in my opinion should guide practical attempts to understand and manage human behavior in organizations. One of these fundamental principles is to use science to generate theory and to evaluate, modify, and implement practical interventions. This was discussed at length in an earlier chapter and is a basis for this entire book. The second principle is to act ethically. This was alluded to throughout the text but typically does not receive much attention in I/O psychology.

### Concrete take aways

In the attempt to understand why people behave, think, and feel as they do in organizations and the impact on organizational effectiveness, there are several clear cut and specific factors that are related to the well-being of people in the work context and the performance of their work roles. These are stated as action steps that the employer and the employee can take. They are hypotheses to the extent that there are limits to their application. Also, as is the case with all scientific knowledge, one cannot conclude with absolute certainty that they are always true. One can only say that the evidence in their support is strong enough to justify a high level of confidence in their efficacy in pursuit of well-being, effectiveness, and understanding.

## Fit the person to the situation

The first assertion is to choose and prepare people for the work roles they occupy so that their characteristics match the work situation. People differ on cognitive abilities, values, personality traits, and interests. These are relatively stable characteristics that they bring to the work situation. In recruitment, potential applicants are encouraged to apply who possess the personal characteristics that fit the work situation. In selection, the recommendation is to analyze the work, identify the crucial attributes required to perform the work and then pick those applicants who provide the best fit to not only the work but also the group, supervisor, and organization. For those skills and knowledge areas that are modifiable, training and socialization are the other interventions that can improve fit. Fit can mean that the characteristics of the person supplement the situation. In these cases, there is similarity between the person and the situation and this similarity enhances the compatibility of the person with the job, organization, group, or supervisor. Although people tend to view fit in terms of similarity, fit can also mean that the characteristics of the person complement the situation. The person's attributes fill the gaps by providing what is missing. This often means that the person is in fact different from the existing situation and the other persons in that situation.

## Fit the situation to the person

Fit of the person to the situation is also achieved by modifying the work situation. Again, a careful analysis is needed of the KSAOs in the work as well as the KSAOs possessed by current employees. Where there is a discrepancy, consideration is given to modifying the work situation to fit the current KSAOs. If employees have high needs for achievement, desire growth, and seek challenge, the job may be enriched to fit these needs. If employees have high needs for affiliation, the jobs could be modified to incorporate a social element. Changing the situation to fit individual employees could extend to modifications in the group and the organization as well. Where managerial styles clash with the personal characteristics of employees, managers could be trained to modify their ways of managing so that they are more in line with employee needs, values, abilities, and personalities.

## Leave room for growth

Similar to leaving a bit of room for the sake of comfort when buying shoes, it is important to not over structure the work situation in the attempt to improve effectiveness and well-being. Providing too good of a fit has limits to the extent that both people and situations change. If a good fit means maintaining the status quo in the face of changes, it can have negative consequences for effectiveness and well-being. Some room for growth is needed in which there is pressure to continually grow and enhance KSAOs. Enriching jobs so as to increase the variety of tasks, responsibility, and the meaningfulness of work is the most obvious approach to leaving room for growth. Room for growth is provided by setting stretch goals that go beyond previous goal levels and allowing employees to participate in solving workplace problems. Rather than imposing a detailed program of activities and forbidding deviations from this program, some amount of improvisation is allowed and encouraged. Leaving some slack in the formal structure of the organization also facilitates adaptation to change and innovation by individual employees and work groups. Room for growth is particularly important to the extent that the tasks are

complex and there is uncertainty in the environment of the organization. We saw this in the research showing task complexity as a moderator for such factors as goal specificity and centralization of communication networks. Still another topic in which allowing room for growth was seen as important is in the training chapter. Enhancing transfer of learning to the work situation is facilitated by requiring trainees to deal with some degree of ambiguity and complexity during the training, thereby encouraging a deeper level of processing of the material.

#### Set goals and then monitor and reward progress

There is probably no more practical advice from the perspective of the employer and the employee than to set goals, track progress in achieving these goals, and then provide rewards for goal accomplishment. This may involve self-set or imposed goals, but requires that the goals are acceptable and engender commitment. Rewards can be imposed by others as well as the self. The performance appraisal chapter discusses the use of feedback and the alternative means of providing this feedback. In some instances, the task can be designed so that feedback is inherent in the performance of the tasks. In most cases it requires another individual such as the supervisor or peers to provide feedback. In the group chapter, we noted that members of effective teams tend to monitor each other and provide corrective feedback. Setting goals, tracking progress and providing rewards were also discussed as ways of enhancing acquisition in training programs. Finally, progress toward fulfilling goals needs to be rewarded. This requires identifying outcomes that are valued and then rewarding the person by providing them contingent on their progress.

#### Continually learn and grow

The work situation should be designed so that the continual refinement and expansion of knowledge, skills, abilities, and other characteristics (KSAOs) is rewarded and enabled. Encouraging and supporting continual learning and growth is achieved through the design of the work environment as well as the social processes and structure of the organization. Intrinsic motivation is more likely in jobs with varied and meaningful tasks as a consequence of activating growth needs such as self-actualization and self-enhancement. The training chapter outlines the instructional systems approach which begins with a need assessment, leads to a design of a program that incorporates research on how to learn, is then implemented with techniques and media that best fit the objectives of the program, and finally culminates in an evaluation of how well the program is doing in the acquisition of KSAOs and the transfer of what is learned to the work situation. This recommendation requires that employees are motivated to learn. In part this is a function of traits such as learning orientation but it is also a function of incentives and learning environment that management provides trainees. An effective organization is likely to have a climate in which risk taking and mistakes are encouraged and the acquisition of new KSAOs leads to promotions, exciting assignments, and monetary rewards. Continual learning and growth was also present as a process dimension at work in effective teams. In effective teams, members reflect on their past performance and then attempt to learn from their successes and failure to improve future performance. Transformational leadership succeeds as a consequence of inspiring followers to expand their capabilities and become like the leader.

## Justice for all

An effective organization creates a climate in which employees feel that they and their fellow employees are fairly treated. Outcomes such as pay raises, bonuses, promotions, and work assignments are distributed on the basis of merit. The procedures used in the distribution of outcomes such as performance appraisals are conducted in an objective, consistent, and open manner. As part of procedural fairness, employees anticipate that they can appeal and seek redress for decisions that they believe are unfair. Information is provided to employees about decisions that is accessible, accurate, and open. The information includes reasonable justifications for the distribution of resources. Finally, people are treated with respect and their views are taken seriously. As seen in several chapters of the text, fairness is conducive to more positive work-related attitudes, lower levels of stress, higher effectiveness, and less counterproductive work behaviors (CWBs).

## Cultivate teamwork

What do we mean by teamwork? Effective teamwork is characterized by members who work together to learn from their experiences, engage in constructive conflict and the management of affect, help each other, share information, coordinate their actions, and share mental models that are accurate reflections of the tasks and group functioning. At the level of the group, when the tasks performed require a high level of cooperation, teamwork is crucial to success. Although groups performing tasks that have little requirement of cooperation may not benefit as much from teamwork, at the level of the organization teamwork is essential. All organizations require cooperation and coordination of efforts among the various individuals and groups constituting the organization.

## Cultivate high quality relationships: The human relations movement redux

One of the early theoretical approaches to understanding human behavior in organizations was the human relations approach. The human relations approach emphasized the need for management to acknowledge the importance of employee perceptions, needs, and attitudes. The advice was to attend to these factors through a management style in which a manager was to develop warm and supportive relationships with employees by listening to their concerns, seeking their input, and treating them with respect. In surveys of management theory, the human relations movement is typically treated as an antiquated approach that was replaced with more sophisticated systems and contingency thinking. Contrary to this rejection, the research findings in I/O psychology support many of the key elements of the human relations approach. Employees are more satisfied, experience less stress, and perform better to the extent that they report that their supervisor is considerate, the organization supports them, they have input to management decisions, and their jobs are meaningful and challenging, to name only a few of findings from several decades of research that support the basic human relations approach. Of course, this is not to deny that there are individual differences in the extent to which employees are receptive to such factors or that the implementation of human relationship can be manipulative. Still, the research findings suggest that the relationship between individuals in an

organization serves as a context to specific actions and supersede these actions. This is a hypothesis that has yet to be fully examined, but it would seem that in the context of a high quality relationship a manager may be given considerable latitude by employees in how he or she treats them. On the other hand, in the context of a bad relationship, no amount of considerate, participative, or supportive leadership may succeed in promoting the welfare and effectiveness of employees.

What constitutes a high quality relationship? The most obvious characteristic is that people like one another and are friends. Other constituent factors are trust, authenticity, identification (i.e., the extent to which members share a common identity and identify with each other), formality (e.g., spontaneous versus rule driven), fairness, commitment, and mutual support. Relationship quality can come in the form of an input, a mediator, and a moderator in considering the interconnections among variables. We have seen evidence of the importance of high quality relationships in the research on team member exchange (TMX) and leader member exchange (LMX).

### Empower

Another theme running through the industrial and organizational research is that employees are more effective, satisfied, and less stressed to the extent that they feel that they have control of the situation and can exert influence. On the other hand, a lack of control is conducive to dissatisfaction, ineffective performance, and stress. A sense of control can originate from a variety of sources. The type of influence tactics used by others in the work setting is one factor. Tactics in which persons attempt to impose opinions on others appear less effective than tactics that appeal to reason or that attempt to increase the liking of the target for the person attempting the influence attempt by complimenting the target. A possible explanation is that the latter tactics increase the sense of control of the target whereas assertions or attempts to force reduce control. At the group level, groups are more effective and members are more satisfied to the extent that they perceive that there is shared leadership within the group. Again, sharing of leadership facilitates a sense of control. The research on stress shows that strain is associated with situations in which the demands of the job outstrip the ability of the person to control the situation and there is no support for the individual who faces the demands. A key element of intrinsic motivation is a sense that one can control outcomes whereas extrinsic motivation emerges when the individual lacks a sense of control over outcomes. One could argue that many of the effects observed in the research in I/O are mediated by a sense of control. On the other hand, factors that are normally related to effectiveness and well-being may fall short in providing benefits to the extent that employees lack a sense of control.

### Engage the self

Work is most meaningful, satisfying, and intrinsically motivating when it is seen as a means of self-expression. When work affects how we perceive ourselves and how others perceive us, our successes and failures are personally relevant to us. We perform tasks with vigor and persistence to succeed and thereby confirm that we possess valued attributes associated with success. Success is associated with a deep level of satisfaction and a sense of well-being, whereas failure is associated with equally deep dissatisfaction. The motivational effects of work that implicates

the self is basically an attempt to bring the actual self-concept in line with valued or ideal self-conceptions. Many of the effects observed in the research are mediated and moderated by the impact on the self. Here I need to speculate because there is insufficient research to substantiate my assertions. Nonetheless the general body of research and theory for self-esteem and self-concept suggest several hypotheses. Leadership that is supportive, participative, and considerate enhances the satisfaction and performance of followers to the extent that it enhances the self-conceptions of followers. Also followers with more positive self-conceptions are more likely to respond in a positive manner to such leadership. The same hypothesis could be posed for goal setting, outcome contingent rewards, person-situation fit, and other specific interventions. The notion of engaging the self as a path to increased effectiveness and well-being is akin to encouraging growth and learning. In both cases, the person strives to expand capabilities. To the extent that the individual feels that work has implications for the self, the striving is guided by a desire to achieve valued personal attributes.

### Manage perceptions

Although specific interventions can contribute to well-being and effectiveness. It is important to recognize that the objective act of intervening will have limited impact if people involved do not perceive what was changed in the situation. One could arrange to make outcomes contingent on the progress made in accomplishing goals, but if people do not have expectations that they can achieve a goal and that they will receive these outcomes once the goal is achieved, the contingencies will have limited effect. A person who attempts to influence others using the resources available to her is unlikely to have much influence if the recipients of the influence attempts believe the person attempting the influence lacks power. Stress is the consequence of the perception that there are threats in the situation and the individual is unable to deal with these threats. The exercise of leadership requires that followers see that individual responsible for successes of the organization or group and attribute to the person in the leadership role the qualities of a leader. Fairness is also a matter of perceptions. Outcome distributions, procedures, information, and treatment are only fair to the extent that they are perceived as fair. Other concepts discussed in the text such as mental models, self-conceptions, self-efficacy, group-efficacy, diversity mindsets, and self-fulfilling prophecies incorporate the basic idea that perceptions of the situation are as important and perhaps more important than the objective situation. One implication that was discussed in the leadership chapter is that it is important to manage impressions. Of course impression management can come in the form of deceit but the principle stated here implies that the objective situation matches the perception. While it is unethical and dangerous to claim one thing and do another, it is futile to attempt improvements in the work situation if recipients unaware of these changes or inaccurately perceive what was done.

### Midrange principles

These are principles that are more abstract and less specific than the concrete suggestions that form the base of the hierarchy. They encompass the specific interventions and provide a general framework that can guide their implementation. As an example one might have the midrange principle guiding one's behavior of improving one's personal physical health and specific



interventions in the form of biking in the neighborhood for four miles a day, swimming 10 laps, and keeping one's weight at 180 pounds. The generality of the midrange principle of physical health is sufficiently broad and abstract to encompass not only these specific actions but other actions (e.g., lifting weights) and variations on these specific actions (e.g., biking on a stationary bike). Similarly, the principle proposing the accumulation of social capital could link directly to the cultivation of human relationships and teamwork, but could involve other interventions and could suggest a variety of approaches to cultivating high quality relationships and teamwork. Because of their generality, they are not as easily testable but are still subject to empirical evaluation.

#### Define success...

This is perhaps the most neglected issue in all of I/O and in the management of human resources management. The first steps in any attempt to improve organizations should be to carefully analyze the job and establish the criteria defining what constitutes effective performance of the job. There are a variety of techniques available that were covered in detail in the chapters on work analysis and performance appraisal. When taking steps to increase motivation, manage stress, build teamwork, find a good person-situation fit, and train and develop KSAOs, it is crucial to know whether the interventions are achieving true success. The use of general subjective evaluations by supervisors of the performance of employees is seldom irrelevant to this issue, but as seen throughout this text, it is too often the only measure of success. Too often the research in I/O and the management of Human Resources focuses on what is most visible and obvious rather than carefully constructing a model of performance that is applicable to the situation.

#### Build human capital

This is perhaps the clearest midrange principle and is seen throughout all the chapters in the text. Selection, training, and performance appraisal are all intended to increase the total pool of skills, abilities, and knowledge that can be used to performance work roles. The keyword in many organizations today is flexibility. Rather than hiring and developing people to fit one narrow job, the focus is increasingly on enabling people to perform a variety of tasks and jobs. Cognitive abilities both specific and general have become increasingly important with increasing complexity of technology. Because employees will need to stay on top of changing technology, cognitive ability provides them with the capacity to learn and adapt. Once on the job, employees are provided with training and development throughout their work career. Along with creating specific training programs that provide employees with the opportunity to upgrade and expand their knowledge and skills, organizations strive to create a climate or culture that encourages and supports continuous learning. Finding a good fit between the individual employees and their work situations, changing the situation to fit the people, and performance appraisal and feedback are additional interventions aimed at enhancing human capital.

## Build social capital

In recent years the enhancement of social capital has emerged as another key principle. Social capital consists of relationships among people in the organization and between people in the organization and outside the organization. These relationships provide access to resources, enhance well-being, and increase motivation. Social networks enable the accumulation of social capital in two ways. Social capital that is internal to the group is associated with bonding among group members and relationships that are strong, positive, multiplex, and reciprocal. Such relationships engender trust, a common social identity, and social cohesion. Social capital is associated with bridging between members within the group and individuals outside the group. These external bridges provide access to novel information and encourage innovation and creativity.

## Diagnose the situation and the contingencies

Another theme running throughout the text is the need to take a diagnostic approach and do what seems to make the most sense based on the contingencies. Perhaps another way of stating this general principle is that “IT all depends on...”. The research in I/O psychology has established numerous contingencies based on variations observed in effects across situations and individuals. Not all the interventions work for all people. Goal setting is more effective for some types of people than others. Some traits are related to success in some types of jobs but not others. Likewise, situational variations such as differences in task characteristics moderate the impact of interventions. Efforts to build cohesive teams make more sense when the tasks require reciprocal interdependence and cooperation than when the need to cooperate and interdependence is minimal. Cognitive ability is a better predictor of future success on complex tasks than on simple tasks. Research has generated sufficient number of contingency factors to allow the construction of decision models to aid the manager in deciding among alternative courses of action. An example is the Vroom/Yetton/Jago model that is based on the research on participative management. The person goes through a series of decision rules that are based on past research and arrives at a feasible set of leader behaviors. This type of decision aid would be useful for other potential interventions. All three of the major human resources management topics – selection, performance appraisal, and training – begin with diagnosis. This comes usually in the form of work analysis in which a determination is made of the KSAOs required in the position.

## Integrate the formal and the informal

Integrating the formal and the informal provides a more abstract, midrange principle that encompasses many of the specific interventions. The formal is what management does to improve wellbeing and effectiveness using programs, procedures, techniques, rules, and tools. The classic example is the formal organizational chart which states who occupies what work role, who reports to whom, and the lines of communication and command. Yet, what actually emerges inevitably deviates to some extent from the formal and these deviations from the formal constitute the informal organization. All of the specific interventions forming the base of the hierarchy in my hierarchy of understanding (e.g., goal setting, empowerment, enhancement of teamwork, fitting the person to the job) may start out in one form but inevitably deviate to some extent from what was originally conceived. An example is the structured interview which may

begin with requirements that all interviewers exactly the same questions and follow the same path in the evaluation of applicants, but over time may morph into much less structured interview. Training programs may be designed to focus on specific KSAOs and use specific techniques but inevitably these programs will be modified in ways that wander away from the original design. The point is not make sure that the formal is maintained. The emergence of informal processes and structures reflect real dynamics at work in the organization and real functions that need to be served. What is important to ensure is that the formal and informal structures and processes work together rather than clash.

More is not always better

There is a tendency to believe that more is better with regard to all the interventions that are potentially used in an organization. There are limits as seen throughout this text. One prime example is with the topic of work motivation. There are limits to the levels of work motivation and beyond these limits, the health and well-being of employees can suffer. Another example is group cohesion. When internal bonding of a group reaches the point that employees no longer engage in critical thinking and fail to acknowledge outside views, disaster can occur. Frequent feedback on performance is a good thing but imagine continually receiving evaluations on what one is doing in a work role. Increasing the difficulty of goals improves performance up to the point that they are seen as impossible to achieve. To perceive one's work as having important implications for the self-concept and self-evaluations is likely to engage the individual in the work-role, but to perceive one's only in terms of one's work may lead to burnout, stress, defensiveness, and other negative consequences. Even helping and altruistic acts have limits in that if they are overdone they might hurt the ability of those helped to take initiative and learn from mistakes or may overload the helper. This implies a curvilinear relation between many of the factors that are related to well-being and effectiveness but this has not been fully examined in the existing research. For instance, it would seem that one might have too much intelligence for some tasks. Likewise, it would seem that an individual could have too much of some personality traits such as agreeableness, conscientiousness, extraversion, openness to experience, and emotional stability. So far, the relations reported in the research appear linear rather than curvilinear, but it seems likely that there are some situations in which there are diminishing returns or even negative outcomes associated with a very high level of these and other traits.

Fundamental principles:

At the pinnacle of the hierarchy are two general principles that in my opinion encompass all the lower level interventions. These are philosophies, not concrete interventions, and can manifest themselves in many forms. They guide the other interventions. As an example, goal setting to improve the performance of employees is guided by scientific research assessing whether or not it is effective in the situations in which it is used and the employees who are assigned the goals. Goal setting is also guided by ethics to the extent that it is used in a way that does no harm and respects the dignity of the employees.

Ethics trump efficacy

Just because something works in the sense that it increases the effectiveness of the organization or the individual or even benefits well-being does not mean that it is ethical. When there is a conflict, I would declare that we do what is ethical even it is at the cost of these other objectives. In deciding what is ethical we can return to the general principles set forth by the American Psychological Association. First there is beneficence and nonmaleficence. The ethical course of action is to do what enhances the rights and welfare of others and does no harm. Fidelity is the next general principle. We strive to develop trusting relationships and then take responsibility for our actions. Integrity is the third principle. We are truthful in our research, practice, and teaching. Justice means that we avoid discriminating against groups of people and strive to ensure that they all have equal access to the interventions and knowledge generated by I/O psychology research, theory, and practice. Finally, we treat people with respect and honor their privacy, confidentiality, and right to self-determination. Interestingly, acting in an ethical manner is congruent with many of the concrete and mid-range principles, most notably the human relations principle. However, conflicts inevitably occur. The text touched on these potential conflicts. We shouldn't use insecurity and threats to physical well-being to motivate even if it could energize people to work harder. Creating inequity might lead to higher levels of performance but it would not be ethical to intentionally create injustices as a means of motivating people. To intentionally discriminate against applicants because their age, sex, ethnicity, national origin, color, and disability status is unethical by most reasonable ethical standards. But is the use of a selection procedure that predicts job performance and also adversely affects the hiring of persons possessing one or more of these characteristics unethical? Here the decision is subject to considerable debate. The issue is whether the level of validity and benefits to the organization and the persons hired sufficient to outweigh the costs to the individuals and society of rejecting these persons for employment. Likewise, we might conclude that providing realistic job previews are not especially effective in recruiting applicants and ensuring that they stay with the job, but is it ever ethical to lie to applicants about the job that they are offered? Acting ethically is not always straightforward and requires critical thinking through the issues. Sometimes an approach that is less effective in achieving organizational objectives is preferred because "what works" is unethical. Acting ethically also takes courage especially for those industrial and organizational psychologists who work as practitioners in organizations and are asked to act unethically.

Take a scientific perspective...measure, theorize, and empirically test

This entire text takes a scientific perspective. To understand and to change the organization or the employees and groups within that organization, hypotheses are derived based on the best available research and then these hypotheses are empirically tested. We have seen science at work throughout the text and by now you are probably aware that there is less than 100 percent agreement on how to best conduct scientific research in organizations on work-related issues. Taking a scientific perspective may mean conducting research to evaluate whether an intervention works or testing a hypothesis derived from theory. It also means using the research of others to determine whether a management technique or assertion is valid in light of the accumulated research.

Using a scientific approach is not without its ambiguities and dilemmas. Here are a few issues that were discussed in the text.

### 1. Meta-analysis for better and worse.

The quantitative accumulation of research findings has provided coherence and revolutionized the field of I/O and other disciplines. It is important to recognize however, that there are a lot of judgment calls involved in meta-analyses. Particularly important to note is the use of corrections for statistical artifacts. In this text both corrected and uncorrected effect sizes were presented. However, some of the corrections can be debated. Whenever the corrections lead to large jumps in effect sizes it is important for the reader to proceed cautiously in the interpretation of the effects. Also, the rule of GIGO (garbage in- garbage out) applies. A meta-analysis of a body of flawed findings yields flawed conclusions. No amount of statistical correction can improve on lousy research.

### 2. Keeping it simple, the danger in the proliferation of constructs.

Some authors have lamented the proliferation of concepts in the field. Rather than representing distinct constructs, in some cases these appear redundant. We have seen the use of factor analysis and structural equation modeling to determine the simplest underlying structure of responses to various measurement instruments. The field needs to remain vigilant in the use of constructs and to follow the dictum that the simpler explanation is usually the better explanation.

### 3. Taking effect sizes too seriously or not seriously enough.

We can go to either extreme in attempting draw conclusions from effect sizes. The effect sizes summarized in the text may strike some readers as far too small to take seriously. This is a dangerous conclusion. Small effects can sometimes have large consequences. At the same time, just because an effect appears consistently over studies does not necessarily imply that it is an important effect. A review of the research literature will show that some authors conclude from correlations as small as .20 that the effects are of great importance. However, sometimes a small effect size is, in fact, a small and trivial effect.

The author would suggest two questions to ask when interpreting effect sizes. First, is there a theory associated with the research? A small effect size that can be explained with a larger theoretical framework has much more important implications than an effect size that is apparently disconnected from a larger body of findings and constructs. Second, will the intervention or procedure associated with the effect be used in isolation or will other interventions or procedures be used in conjunction with the intervention? A correlation of .20 becomes quite small and trivial if it is used to justify the use of a test that will be the only test used in the selection of applicants. When it is used with other procedures that are nonredundant and also contribute to the prediction of success on the job, the correlation of .20 becomes much more worthy of consideration. In general, the effect sizes revealed in the research literature are typically in the .20 to .30 range. Concluding that these are silver bullets that can be used in isolation to yield huge benefits is probably wrong in most cases. Concluding that these parts of a larger set of interventions that can be used to benefit effectiveness and well-being is a more reasonable conclusion.

#### 4. The need for multiple methods.

To thrive as a science, I/O psychology needs to avoid reliance on a few methods and instead embrace multiple methods. An area of overreliance is the use of subjective, self-report ratings to measure the work environment and behavior. Going back to an earlier assertion that perceptions are crucial, this is not necessarily a bad approach. For the field of I/O to reach its full potential, however, it is vital that researchers break the over dependence on self-report. Regardless of their merit, I have never been convinced that the issues of social desirability, self-deception, and common method bias are unimportant and can be dismissed as concerns. Perhaps researchers should consider orientation and training in which the persons providing these reports are taught how to introspect on their thoughts, feelings, behavior, and the external work environment. I/O also needs multiple research strategies. This means both correlational and experimental research conducted in both field and lab settings. Each approach is flawed in some respects while providing strengths in other respects. By using multiple strategies and triangulating the findings, the flaws of one approach are compensated by the strengths of other approaches.

#### Conclusions

In concluding, it is worth making three primary assertions. First, it is essential that managers appreciate and understand the role of human behavior, feeling, and cognition in any attempt to enhance the effectiveness of organizations. Organizations ultimately succeed or fail as a consequence of the competence, commitment, and involvement of its employees. Organizations are more than people, but without people, there is no organization. As obvious as this may seem, it is still largely ignored. The importance of people makes a nice slogan, but too many managers continue to give short shrift to the human side of enterprise. A second assertion is more personal and is addressed to you the reader. Your well-being depends on the work you do and the organizations for whom you work. Obviously we need work to earn money that allows us to buy food, healthcare, recreation, and fulfill all the other needs necessary to physical and mental health. But more than the money that it allows you to earn, work is a means of finding meaning in your life. Certainly there are other important influences including family, religion, hobbies, and friends. But even when these other sources of meaning are more important than work, well-being depends on whether the individual achieves a balance between work and non-work. In making my final point, it is worth returning to a point made in the preface: I/O research, theory, and application is necessary to obtain a general understanding of human psychology. We spend much of our lives preparing to work and then actually engaged in employment activities. Even when we end our working career and enter retirement, the work and organizational roles role we occupied through our lives continue to have a major impact. In short, work shapes human behavior, cognition, and feeling and without an understanding of work and the organizations that serve as the context to this work, we will never really achieve a comprehensive understanding of human psychology.

As important as it is, the field of I/O is a relatively new science and is a story in progress. The field has made amazing progress and has matured and evolved into an international discipline. Based on the impressive advances in the research, theory, and application over the last few decades, we can expect that I/O will continue to grow in visibility and importance and that its

contributions to the management of human resources in organizations, human well-being, and the field of psychology will accelerate. So buckle your seat belts and full speed ahead!

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Image: Question mark. *Image courtesy of Stuart Miles at FreeDigitalPhotos.net*

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Image: Henri Fayol

Image; Frederick Taylor

Image: Frank and Lillian Gilbreth

Image: Max Weber; from Wikipedia Commons.

Image: Wilhelm Wundt in his lab in Leipzig Germany; By uploaded to Wikipedia by Kenosis (the English language Wikipedia (log)) [Public domain], via Wikimedia Commons

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Image: Hugo Munsterberg writes the first textbook in I/O psychology (1913); from Wikipedia Commons.

Image: Walter Dill Scot publishes Increasing Human Efficiency in Business

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Image. Biofeedback. By Army Medicine (Flickr: Biofeedback Training Program) [CC BY 2.0 (<http://creativecommons.org/licenses/by/2.0>)], via Wikimedia Commons

Image: psychotherapy. By Kendl123 (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0>)], via Wikimedia Commons

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Image: Two 3d Characters Showing Communication Courtesy of FreeDigitalPhotos.net

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Image: Two figures putting together puzzle. Image courtesy of David Castillo Dominici at FreeDigitalPhotos.net

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Image courtesy of David Castillo Dominici at FreeDigitalPhotos.net

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Image: Dog on computer. Image courtesy of Stuart Miles at FreeDigitalPhotos.net

## CHAPTER 10: LEADERSHIP

Image: Figure leading others. Image courtesy of Stuart Miles at FreeDigitalPhotos.net

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Image: Education leaders

Image: Corporate leaders

Image: Religious leaders

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Image: Figure giving lecture. *Image courtesy of jscreationzs at FreeDigitalPhotos.net.*

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## CHAPTER 15: CONSTRUCTS AND METHODS IN EMPLOYEE SELECTION

Image: Magnifying glass on person in line. Image courtesy of Naypong at FreeDigitalPhotos.net

Image: mental rotation item. From [https://en.wikipedia.org/wiki/File:MR\\_TMR.jpg](https://en.wikipedia.org/wiki/File:MR_TMR.jpg)

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